Gleanings in Bee Culture
"Created to help beekeepers succeed."

October, 1949 Vol. 77, No. 10

The Economic Value of the Small Beekeeper

By Elmer G. Carr, Pennington, New Jersey

The area which bees cover is limited so many small apiaries play an important part in pollination.

The small beekeeper makes a greater contribution to the economic welfare of the United States than does the commercial honey producer. This statement is made with due respect to all those beekeepers who produce honey by the carload and is not intended to belittle their contribution to the wealth of the country. However, one who occupies a high position in the beekeeping work of the nation asserts that honey bees are at least 15 times more valuable as pollinators of fruits, berries, and vegetables than they are as producers of honey and beeswax.

It is conceded that many of our trees and plants would fail to produce profitable crops were it not for the visits of pollinating insects. It is also true that honey bees are by far the most important of all pollinating species. This is largely

because they winter over in comparatively large numbers and therefore are the more numerous pollinating insects in springtime.

Further, honey bees can be transported readily to places where their work is needed.

Commercial honey producers have large apiaries and, although there is a large population of bees at each apiary site, the area which these bees cover is limited since bees normally do not range far afield.

Further, a commercial honey producer would display very poor business acumen if he did not locate his apiaries where the prospects for a paying crop of honey were not in evidence. Such a location, except under unusual conditions does not have any relation to pollination as a whole.

On the other hand, the small beekeeper—hobbyist if you will—while hoping for a good crop of honey, does not necessarily have that as his prime objective. He is interested in bees as a part time job, a diversion, or a study. While hoping to get a worth while amount of honey, there is always another year toward which to look if it does not come. For these reasons his holdings, although small, are quite well spread over the country and his bees cover a large part of the general pollination needs of the country because of this wide distribution.

In the earlier history of the United States it was common for each farmer to have a few hives of bees. Also there were many places where wild pollen carriers could nest and multiply. At that time agriculture was quite diversified. Now, however, with the clearing up of breeding places of wild pollinating insects and increased specialization in agriculture, there are large areas of such activities as fruit growing where no bees are kept and clean culture has routed out wild pollinating insects. This with the almost complete absence of the small farm apiary has left a gap which the small beekeeper is helping to fill.

Since the small beekeeper does not get the publicity as do those producing honey by the ton, his economic value is not brought to the attention of the public. In fact, too often he is looked upon as a more or less daffy hobbyist to be tolerated perhaps, but not to be taken seriously. Nonetheless he is a valuable cog in the machinery of modern agriculture.

Considerable publicity is given to large apiaries in some states. Perhaps New York State might be considered a good example. However, according to figures compiled by A. C. Gould, apicultural expert for that state, of 10,079 apiaries in the state, 88.7 per cent contain 25 or less colonies. And of 140,043 colonies in the state, 37.5 percent are in the hands of beekeepers keeping 25 or less colonies. Thus it will be seen that the bees of the small beekeeper cover a large field with their activities.

While it is admitted that there is some activity among the larger beekeepers in commercial pollinating work, this has not assumed large proportions and does not cover the multiplicity of fruits and berries distributed throughout the country which require the services of pollen-carrying insects to be satisfactorily productive.

It might be noted in passing that the increasing use of insecticides and herbicides is further aggravating the pollinating problem by killing off wild pollen carriers and reducing the uncultivated plants on which they feed.

Owing to the disruption of agriculture in Europe, many farm seeds formerly imported are in short supply. This makes imperative an increased crop of farm seeds and a consequent increase of pollen-carrying insects. Not only are these seeds needed at home but there is also the need abroad for restocking war-torn lands.

Tests made by providing an abundance of honey bees contiguous to clover fields where that crop is grown for seed show an increase of 15 percent in the amount of seed harvested.

While due credit is given to the large beekeepers who produce honey by the ton, credit must also be given to the smaller beekeepers for their part in adding to the supply of a healthful sweet. Many tons of honey are thus produced by the small beekeeper. This rarely appears in any statistical figures since such honey is consumed by the beekeeper, his friends, and is sold to nearby neighbors.

Trailer Ideal for Bringing in Honey

By H. J. Rahmlow, Madison, Wisconsin

The question has often been asked, "Why don't you get a truck to haul in honey and travel to outyards?" Our answer has always been, "We can't afford it and don't believe anyone with less than 200 colonies who does not have other use, such as farm hauling, for a truck can afford to own one just for beekeeping."

We live in the city and have four outyards. A trailer is a real economy and is in some respects superior to a pick-up truck for hauling supers and bringing in honey. The picture on this page shows our trailer. Note that the box is made to hold three standard hive bodies in width and four in length, or 12 bodies in a tier. We often put on three tiers or bodies and if each weighs an average of 40 pounds when filled with honey it is a load of 1440 pounds. If the bodies are real heavy and weigh 50 pounds each, the load will be 1800 pounds.

A Big Load

The young man shown in the picture is Wm. Pomarnke of Madison, who has worked for us for several years. He can tell you the sad story of the time two years ago when our trailer broke down. At that time we had old Model T Ford wheels and the bearings in one wheel went out. To take the load home he called a neighbor farmer who came over with a pick-up truck with a body almost the size of the trailer but not the correct width. There were 32 hive bodies on the trailer and on transferring them to the truck made a load higher than the cab and two men had quite a job getting them up there. On arriving home they found the load was so high they couldn't get in the door. Compare that with the height of the load shown in the picture.

For taking out empty supers a rack is put on the trailer body and then 60 hive bodies can be hauled five tiers high with 12 in each tier.

Note the standard Chevrolet wheels and tires — our car is a Chevrolet. We do not need to carry a spare tire for the trailer because there is one in the trunk for the auto. Most any welding company specializing in this kind of work can make the chassis and the body can be made at home if the beekeeper has a knowledge of carpenter work. A good sound hitch is important. The body is made according to the measurement of hive bodies, allowing a little extra room so they can be handled easily. The trailer axle is a little longer than that of a standard auto or trailer to accommodate the trailer body.

We think the trailer a money saver and here are some of the savings: Since we must have an automobile anyhow it would mean an extra garage for the truck; money invested in a truck and annual depreciation; liability insurance which now runs as high as $80 a year.

If we can't raise the price of honey, at least we can try to reduce our overhead cost.

Wm. Pomarnke of Madison with economical trailer and a stack of supers of honey being brought from and outyard. Note that each tier contains 12 hive bodies and the load is only chest high.

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Honey Bees Work Small Areas

By Sardar Singh, Ithaca, New York
[From Farm Research, published by Geneva Experiment Station, Geneva, New York]

[Sardar Singh, the writer, is the gifted young scientist from India who was awarded his doctor's degree at Cornell University in 1948. He has travelled widely in this country and will surely do much to bring modern beekeeping methods into his country.—Ed.]

Horticulture and agriculture are dependent upon the pollination services of honey bees, and a knowledge of factors that limit or favor gathering activities, properly applied, could work to the mutual benefit of beekeepers and farmers. To this end, certain studies of the habits of bees concerned in gathering nectar and pollen have been undertaken.

Marking the Bees

The experiments were conducted during 1947 and 1948 mostly in the vicinity of Ithaca. Individual bees were marked in several ways. "Dupli-Color touch up" paints, which are quick-drying, of suitable consistency, and available in a wide range of colors, proved most efficient. The bees were caught in a piece of cheesecloth, held against a book and marked, and released 50 yards away. An effort was made to obtain as complete a record as possible of the course taken by each bee during her foraging visits to each crop, using graph paper to record the visits to individual flowers each trip.

Different-colored pencils were used to aid in the interpretation of the graph, and composite maps of the visits on each day were made later. The area in which the bees worked was marked off in plots some in a 40-acre field of buckwheat, others in areas of goldenrod, sweet clover, alsike, aster, and dandelion. Observations were made also in an apple orchard, although obvious handicaps prevented the observers from following the marked bees there for long periods.

From the observations it appears that bees work the same plot consistently, and in a relatively small area, and that they are also consistent in gathering either nectar or pollen exclusively over the period of time when the product is available.

One bee was observed to gather pollen in the forenoon and nectar in the afternoon. It is also evident that a bee tends to devote her attention to one crop, even though other plants may be blooming near by. For instance, bees working on buckwheat ignored the presence of goldenrod beside the buckwheat plot. One of the bees under observation returned to the territory she had selected even when blown away from it by gusts of wind into other portions of the field where the same kind of plant was blooming. Some bees spent almost the whole of their lives in the same patch. However, when one crop is no longer profitable, the bees will shift to another.

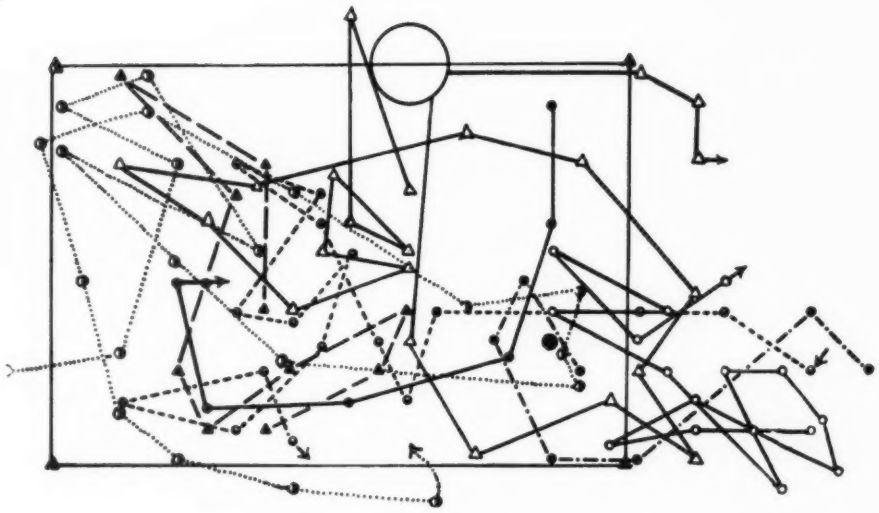
One Bee's Work

This account of the observations on one bee will illustrate the general trend of activity. This bee was working on dandelions. She was a steady nectar gatherer from May 26 to 30, and was noticed to brush pollen from her body and let it fall rather than collect it in her pollen baskets, though other honey bees visiting dandelions were gathering pollen. She was followed during most of her visits during the period, and she averaged 35 minutes for a visit. Her trip to and from the hive took 5 minutes. She was evidently limiting her work to dandelions because she was found sitting in the hive at 8 a.m. on May 27, although other bees were bringing in pollen from hawthorn. Dandelion blossoms opened about 9 a.m. that day. She was found in the hive the next afternoon after the dandelion blossoms had closed.

On May 31 she was absent from her usual plot, so a watch was kept at the hive entrance, where she arrived at 11:36, left at 12:08, and again at 1:06. She was caught and samples of pollen taken from her body indicated that she had shifted to gathering nectar from another crop. Some bees seem to shift from one crop to another earlier than others, and the reason is not clear. Apparently each is guided by the circumstances around her.

Orchard Observations

Observation of bees in apple trees presented major difficulties. The bees were marked with bright-col-



One day's work for a bee—the different symbols indicate the trips made and the time spent at each place on a plot.

ored powder to help in recognizing them from the ground, although in the course of a few hours the bees succeeded in cleaning the powder from their bodies, which handicapped continued observation. In general, the final conclusions from the data obtained agreed with the work on field crops. Individual bees become localized to small areas which might be one tree. Apparently rambling over several trees may be due to a meager yield of nectar or pollen by the blossoms, or by disturbance by the wind, or by other insects.

Self-unfruitful varieties of apples and similar varieties of other fruits are the crops directly or chiefly affected by this localization of bees to small areas. A single apple tree may cover an area 30 feet in diameter and put forth more blossoms at one time than other crops in a plot of equal size. Consequently, the activities of a bee that limits its foraging to one tree are of little benefit to the set of fruit.

Change in Practices

Evidence, as well as practical experience, points to the need to plant pollinizer and mother varieties next to each other to overcome this difficulty. As a result, changes in present practices may make the honey bees more useful to the fruit grower.

This study is the first that has presented detailed evidence of the behavior of bees engaged in gathering nectar and pollen. Although incomplete, it presents information concerning the advantages and limitations of honey bees that may be applied by fruit growers toward the solution of some of their problems in cross-pollinating self-unfruitful varieties.

"I told you to keep those hogs out of the bee yard."

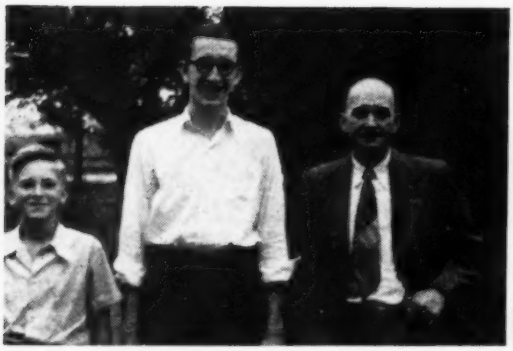


Fig. 1.—H. M. Clubine of Brantford, Ontario, Canada, and his two sons, Oliver and Donald. Fig. 2.—H. M. Clubine's bee supply manufacturing plant at Brantford. Another large building, not shown, is the warehouse for finished bee supplies and building material.

g. 3.—J.

Ontario Beekeepers

By H. H. Root

Twenty-two miles southwest of one of Canada's largest cities, Hamilton, Ontario, is the thriving small city of Brantford, the home of the late R. F. Holtermann. H. M. Clubine, beekeeper and manufacturer, has built a new factory at the edge of the city on the east for the manufacture of beekeepers' supplies. Close by, he has a large warehouse for the storage of supplies, mill work, and building equipment. Formerly located in downtown Brantford, he finds the location outside far better suited to his needs. It is on a main highway and there is ample room for parking. The factory is modern in every respect, being equipped with all manner of up-to-date woodworking machinery and also for the manufacture of comb foundation. He has a boiler of ample capacity for furnishing steam used in refining wax and in the rendering of wax from old comb and cappings.

J. W. Hodgson's Extracting Plant

Twenty-five years ago I visited Mr. Hodgson and his brother, the late Arthur F. Hodgson. At that time I photographed their large honey extractor and rotary uncapping machine. The pictures, first shown in Gleanings, have appeared in several editions of ABC and XYZ of Bee Culture. As shown, the shaft of the extractor is horizontal instead of being vertical, and the combs whirl around in their own plane in vertical circles. J. W. Hodgson has improved the construction (see Fig. 7) in order to take containers or boxes of combs. These boxes have tight bottoms but are otherwise the size of the supers. When the combs are uncapped they are placed right in these boxes, and the latter, when full, are shoved into the extractor. The extractor holds eight boxes of combs or 96 at a full load.

The containers are withdrawn from the extractor and overturned on a bench, leaving the combs standing upside down on their top bars. When the regular supers are placed down over them and turned over, the combs are back again in place, ready to be put back on the hives or cleaned up, as the case may be.

As in the radial type extractor, the honey extracts from both sides of the comb at once, but also like the radial, more time is required than in the reversible type of extractor—10 to 15 minutes, depending upon the thickness of the honey. Unlike the radial, the combs revolve in their own plane, according to a principle by Bohn shown in Gleanings for November, 1893. The reversible extractors are slower in the long run for they are limited to comparatively few combs each. Mr. Hodgson has extracted as much as two tons of honey per hour.

The Hodgson Rotary Uncapping Machine

The Hodgson original uncapper had two large cylindrical wire brushes with means of adjustment so that the combs could pass down between them, the wires literally sweeping the cappings off the combs. Mr. Hodgson now uses wabble saws as shown in Fig. 4, but the principle is very much the same. In use, this curved guard, of course, is in position over the saws to prevent the

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g. 3.—J. W. Hodgson and sons, Jarvis, Ontario, Canada

cappings and honey from flying up. A maximum of 400 combs per hour for each uncapper is possible.

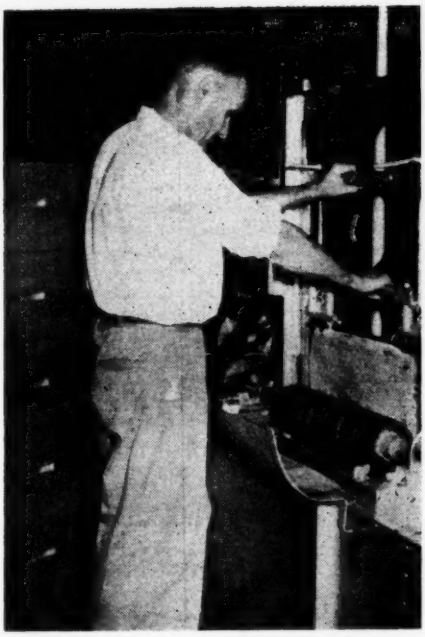


Fig. 4. — When in operation, the curved guard is in position over the wabble saws so that the cappings and honey that fly out are directed downward into the tank underneath.

Mr. Hodgson uses a very ingenious and very simple strainer. It consists of a metal tank with an opening at the bottom for draining off the strained honey. Inside this tank are five concentric cylindrical screens made of coarse mesh heavy wire with a solid hoop at top and bottom. Inside and against this heavy mesh screen are very fine metal screens for straining. The outside screens are finer in mesh than the center one. The lower edges of the cylindrical screens are covered by rubber, their lower ends resting on the bottom of the outer tank. Heavy weights hold the screens in position. The honey is

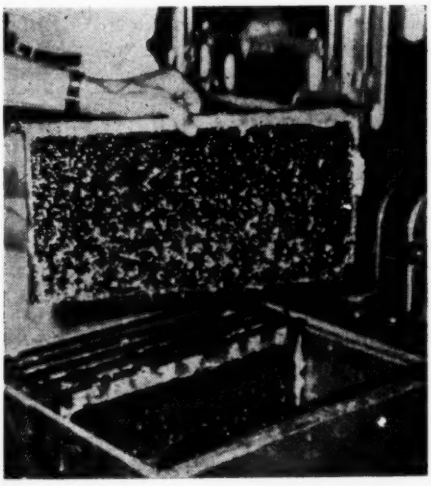


Fig. 5.—The combs, as they are uncapped, are put into large wooden boxes the same size as the supers but fitted with tight bottoms. These go into the extractor with the combs.

pumped into the middle of the inner screen and as it rises the screening surface constantly enlarges. As needed, the bits of cappings may be skimmed from the top of the honey, inside of the screens. The honey outlet is five inches from the top of the outer can. When the fine mesh finally becomes clogged, the level of the honey may be lowered and the clogged screens removed for cleaning.

Fig. 6.—Of late years Mr. Hodgson's bees have had access to acres of sweet clover. In 1949 the sweet clover was very little in evidence, its place being taken by alfalfa.

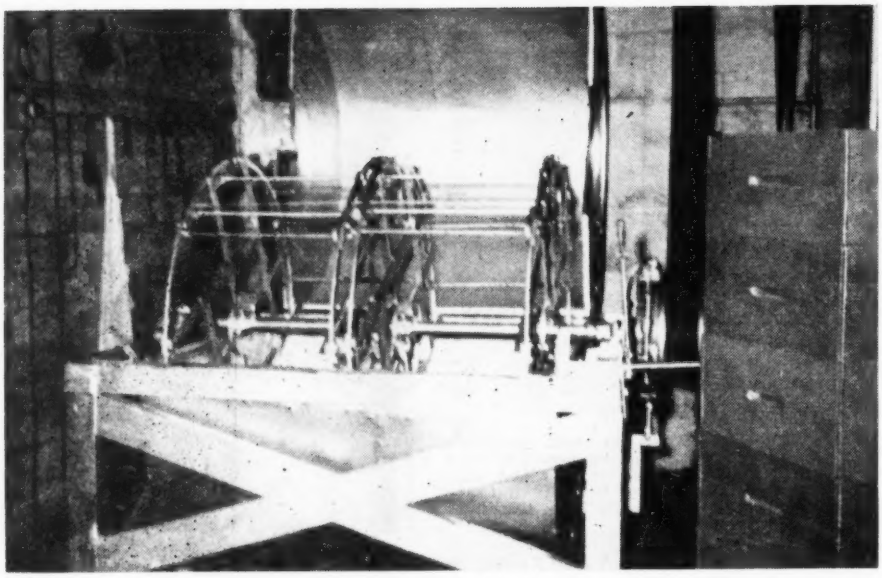
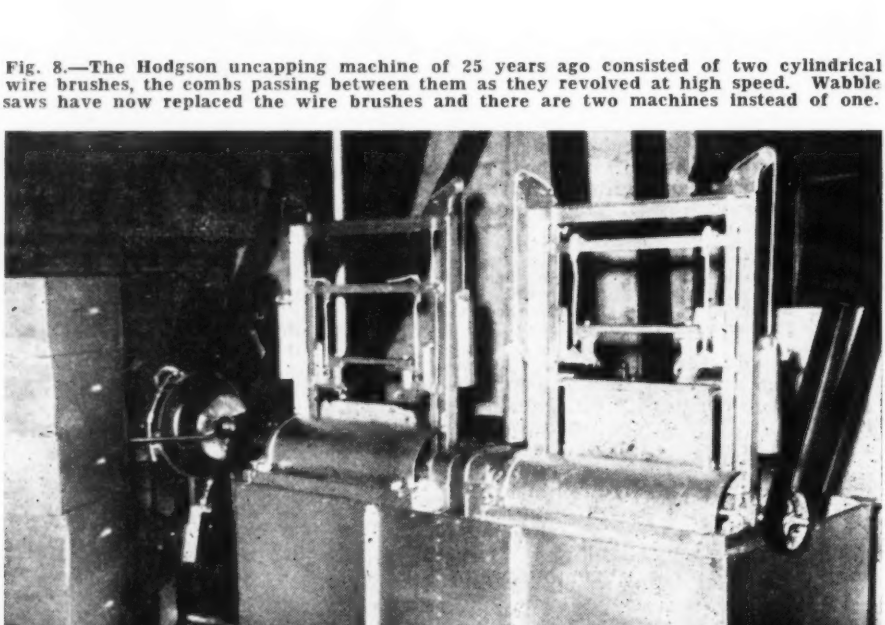


Fig. 7.—The Hodgson extractor, first illustrated in Gleanings 25 years ago. The extractor has been improved so as to take 8 boxes of 12 uncapped combs each. The combs revolve in their own vertical plane, front to top—to back—to bottom—to front.

Fig. 8.—The Hodgson uncapping machine of 25 years ago consisted of two cylindrical wire brushes, the combs passing between them as they revolved at high speed. Wabble saws have now replaced the wire brushes and there are two machines instead of one.



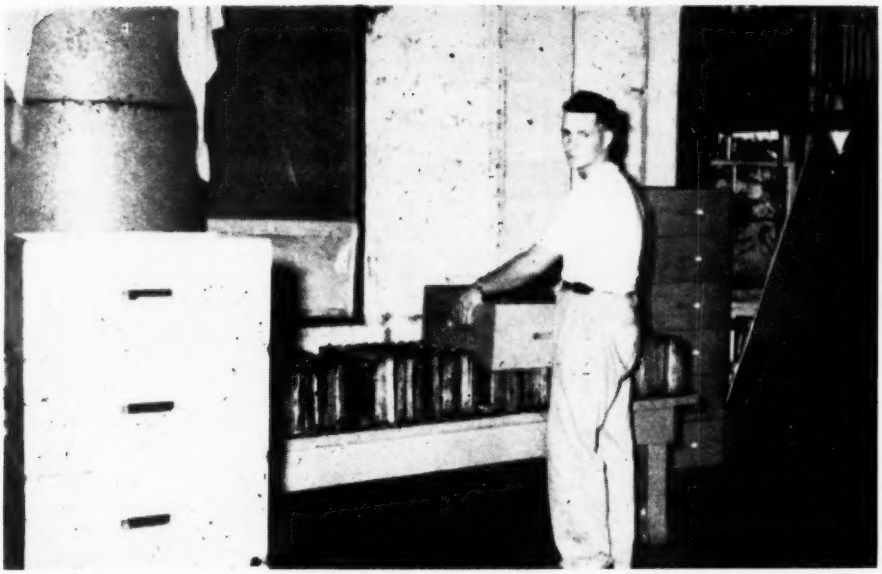


Fig. 9.—After the boxes are taken from the extractor they are overturned on a bench, leaving the combs standing upside down on their top bars.

Mr. Hodgson's apiaries normally depend mainly on alsike clover. Notice the heavy growth in Fig. 6, taken a year ago. Thinking that the location for many years was a sweet clover location, I guessed that the Hodgson honey this year (which, by the way, has a beautiful flavor) to be a mixture of sweet clover and alfalfa. However, Mr. Hodgson told me it was nearly straight alfalfa, as alsike amounted to very little in 1949. The sweet clover flavor was probably imagined on my part.

Mr. Hodgson says, "The alsike has failed completely and we are now depending on alfalfa. Because of the fact that the first cutting is made for hay, and this is usually done before it blooms, we are largely dependent on the second growth. If we have rain and heat at the right time it is possible to get a good crop of good honey, but it is more of a gamble than alsike was.

"In regard to sweet clover, it is my opinion that the reason it won't grow here is that this heavy clay soil lacks lime and humus. I carried on some experiments with a 12-acre field. I used a total of 27 tons of lime and 15 tons of 0-14-7 fertilizer. The cost of this with the added cost of ploughing and harvesting was almost $600, but I have

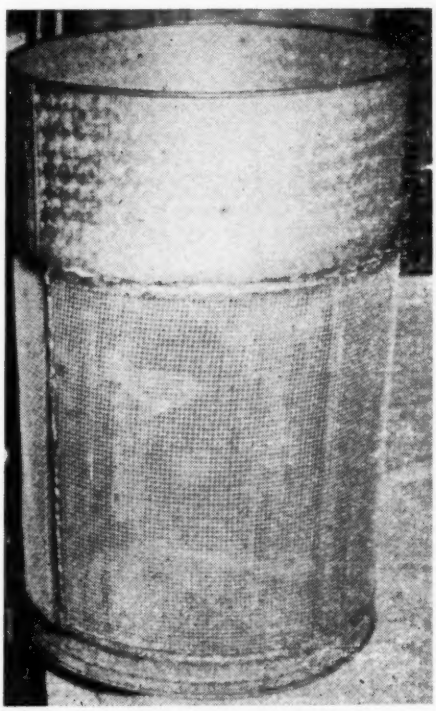


Fig. 10.—The Hodgson strainer somewhat resembles the Ontario strainer except that the cylindrical screens, to facilitate cleaning, have no bottoms.

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had half of this back in seed and an unknown amount in honey. I am more than even and I have undone the harm done to this field in 50 years of mining the soil. I hope to have it in sweet clover next season and plough it under after it blooms a week, then using wheat for a cover crop, get it back into alfalfa. Our hive on scales produced almost 300 pounds from this field and in other outyards our average was about 70 pounds. Besides this we had over double the colonies at the home location. I am very interested in this work of rebuilding worn-out soils and I feel that beekeepers should take the lead as it is to their interest to make it possible to grow the clovers again. The clover in this field was over seven feet high and it was too great a bulk to combine."

Much of the Hodgson honey is marketed in a fine-grain granulated form. In the basement of his large and commodious honey house is a modern refrigerated room for the storage of creamed honey—a very comfortable place on a hot day.

Fig. 11.—The lower edges of the strainer cylinders are rubber covered and held down by a heavy weight. The finest screen is on the outside cylinder.

Fig. 12.—All the screens are covered except for an opening in the center through which the honey is pumped.

Fig. 13.—Mr. Hodgson uses a rotary mixer for thoroughly mixing his honey. This is located on the ceiling under the tanks.

Honey Breads

By **Mrs. Benj. Nielsen**

Toasted honey bread is an appetite whetter for breakfast laggards.

What is more tantalizing than the aroma of freshly baked bread! Well equally tantalizing, anyway, is the aroma of bread as it is toasting, especially if it is honey bread.

Honey breads keep fresh and moist for longer periods of time, and the subtle flavor actually improves. Yeast doughs come faster when honey is an ingredient in the makeup. Rich, deep golden crust is a characteristic of all honey breads. It does, however, require a longer toasting period, so you may need to do a bit of experimenting if you use an automatic toaster. After you find the proper set control, drop in your slices, forget all about 'em, and while you are setting out your honey - drizzled grapefruit, dishing cereal into the bowls and pouring steaming hot coffee (to be sweetened with honey, of course), your toaster will perform its magic and pop up perfectly, even brown slices, to be immediately treated to soft yellow butter and nature's finest sweet.

Honey Rye Graham Bread

One and one-half cakes or packages yeast, 1 cup lukewarm water, 2 teaspoons honey; combine and let work. Scald 1 cup milk, add 2 rounding tablespoons shortening, ⅓ cup honey, 1½ teaspoons salt, ¼ cup sugar, and 1 cup rye graham flour. Mix thoroughly. Then add 1 cup cold water and sufficient white flour (about 8 cups) to make a soft dough. Stir in yeast. Knead on lightly floured surface for about 10 minutes or until dough is smooth and elastic. Place in greased bowl and let rise ½ hour. Knead again and let rise until double in bulk. Punch down and let rise third time. Make into three loaves. Let rise until double in bulk. Bake in moderate oven, 350 degrees F., about 50 to 60 minutes. Remove from pans at once and place on wire rack to cool.

Honey Refrigerator Rolls

Two packages yeast, compressed or dry, ¼ cup lukewarm water, 1 cup milk, 2 teaspoons salt, ¼ cup honey, ½ cup shortening, 3 eggs, beaten, and 4½ cups sifted flour.

Soften yeast in lukewarm water. Scald milk. Add salt, honey, and shortening. Cool to lukewarm. Add 2 cups flour. Beat well. Add softened yeast and eggs. Blend thoroughly. Add remaining flour to make soft dough. Turn out on lightly-floured board and knead until satiny. Place in lightly greased bowl. Cover and let rise in warm place (80 to 85 degrees F.) until doubled. Punch down. Form into smooth ball. Grease surface lightly, cover, and put into refrigerator. When wanted, remove dough from refrigerator and punch down. Mold at once in any desired shape. Or, if preferred, let dough stand in warm room for an hour before molding. Place rolls in greased pans and let rise until doubled. Bake in hot oven, 400 degrees F., about 20 minutes. Makes 5 dozen rolls.

30-Minute Honey Rolls

Two packages dry yeast, 1¼ cups warm water, ¼ cup honey, 1¼ teaspoons salt, 1 egg, 3 cups sifted flour, and 2 tablespoons shortening, melted and cooled to lukewarm.

Dissolve yeast in warm water in large mixing bowl. Add honey, salt, and unbeaten egg. Add flour gradually. Beat well with electric mixer on low or medium speed, or by hand with large wooden spoon. Add shortening, beating until thoroughly mixed. Spoon dough into well greased muffin pans, filling about one-third full. Let rise in warm place until dough has risen level with top of muffin pans. Bake in moderately hot oven, 400 degrees F., 20 minutes. Yield: 18 to 24 rolls.

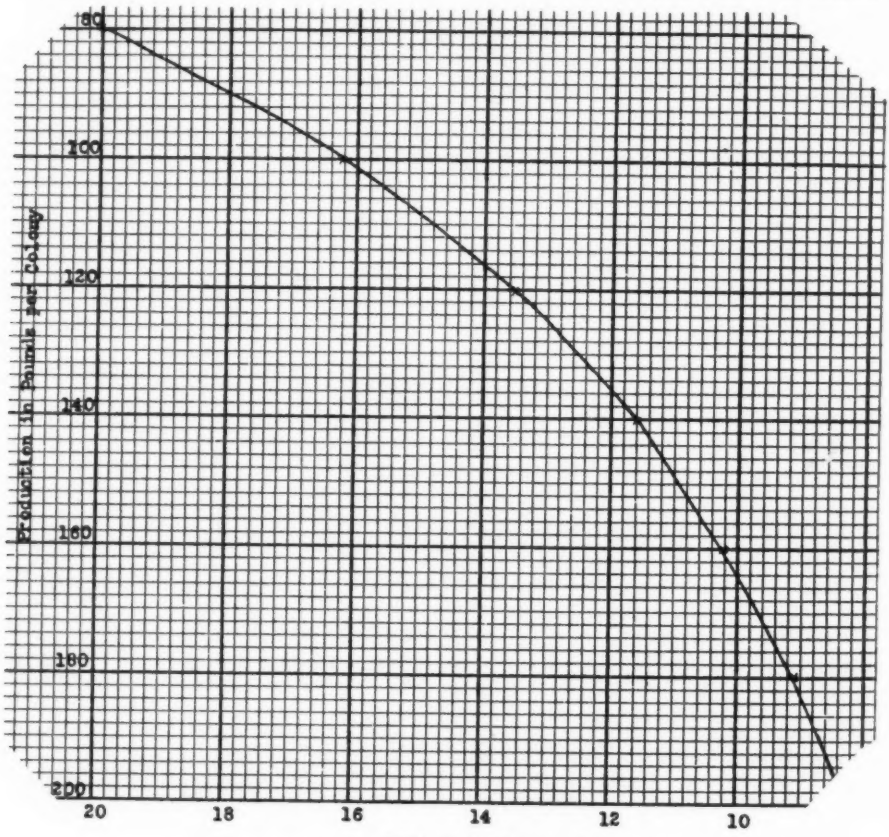
Costs of Producing Honey

By W. G. LeMaistre, Edmonton, Alberta, Canada

A limited survey of the cost of producing honey in Alberta in 1948 has been completed. It may be interesting for beekeepers to see the figures and compare them with their own costs.

The purpose of the survey was to determine what the costs were so that improved practices might be employed in an effort to reduce them. A second reason was to form some basis for judging at what price honey should be selling in order to keep the beekeeper in business.

For those readers who are not familiar with beekeeping practices in Alberta it should be explained that probably not more than 10 percent of the colonies are kept over winter. Each fall when the honey flow is finished 90 percent of the colonies are killed with Cyanogas, the hives stored and prepared for the installation of packages the follow-



The average cost of operating a colony of bees by those included in this survey was $16.16. The average cost per pound of honey in the producer's tanks was 11.88c.

The operating expenses shown in the tables are real and legitimate charges against the bee business. However, a commercial beekeeper may survive in business for a time even though, according to his books, he is operating at a loss. He can put the interest from his investment in his pocket—unless he is operating on borrowed money. He can sometimes defer actual expenditures for depreciation. The small operator, who is usually a side-liner, can cut corners and effect economies in his operations to a greater extent than the commercial beekeeper and therefore survive adversity better. In the long run, however, the price a beekeeper receives for his honey must have a fair relationship to his costs of production.

ing spring.

This survey determined the average cost of operating a colony of bees in 1948 and the cost per pound of the honey in the beekeepers' tanks. The costs of straining, packaging, shipping, and selling the honey are not included in the survey. These latter costs vary greatly with the market to which the beekeeper sells his honey. For a beekeeper to calculate his income he must add these costs to his production costs. They probably average close to five cents per pound in Alberta when the producer packs in retail containers.

The figures were provided by 15 beekeepers who operated anywhere from 30 colonies to 870 with a total of 5400 colonies, the average number being 380. These colonies were scattered almost from the U. S. border to the Peace River. The crops varied from a low of 80 pounds per colony to a high of 200 pounds. As a group, these beekeepers showed themselves to be somewhat superior to the average. Their production per colony was 136 pounds. The provincial average was 129 pounds this year.

There is a definite indication from the data accumulated but not shown here, that where the total investment is the highest the cost of labor for operating was the lowest. The five operators having the greatest investment in equipment had, as a group, the lowest cost for labor. This fact should point to a consideration of improving extracting equipment and buildings that would effect economies in operations. An abundance of supers might aid in reducing labor.

The operator who spent $2.09 on bees of course wintered most of his colonies. In spite of paying himself and a helper above-average wages, he was one of the three most economical operators.

Cost Per Pound

It is well known that the cost of producing honey varies with the yield per colony. For instance, it costs the beekeeper almost as much to operate a colony that produces 80 pounds as it does to operate one that produces 100 pounds. The accompanying graph shows the cost per pound of producing honey as it varies with the colony yield.

Cost per Colony

		Highest	Lowest	Average
Investment:				
	Total investment per colony including hives, buildings, land, truck, and machinery	$32.40	$16.87	$24.50
Operating Costs:				
	Interest on investment and depreciation	4.19	2.00	3.02
	Labor	8.08	2.86	4.40
	Bees and Queens	7.55	2.09	6.12
	Trucking	2.00	.06	1.22
	Miscellaneous (feed, power, light, Cyanogas, rent, taxes, losses—floods, disease, etc.—insurance)	2.17	.20	1.40
Total		18.04	13.37	16.16

Fuel for Bee Smoker

By E. P. Hummel, M. D.

Every once in a while an article will appear in the bee journals about fuel for bee smokers and the best way to fire it. I have never seen the method I use advocated and so, as it is my baby and I naturally think it tops, I am passing it along for what it may be worth.

The handiest and best fuel that I have found is not some old stinking rags but planer shavings obtainable for the asking at almost any planing mill or carpenter shop.

For firing the smoker I cut a burlap bag into about three-inch squares and soak these in a solution of potassium nitrate (saltpeter), four ounces or more to three-fourths of a quart of hot water. The gunny sacking will soak it all up. I then spread the squares out in the sun to dry.

To use this fuel I roll one or two squares together, touch a match to it, and drop it in the smoker and at once fill the smoker with shavings, packing them down moderately firm, give a number of puffs with the bellows, and I have a clean sweet smoke with a slow fire that lasts for several hours of work.

Sterling, Colorado

Beekeeping in the Amazon Valley

By Jicio Mariollino Sorheiro

As the climatic conditions are not the same everywhere it is obvious, that beekeeping in the Amazon Valley is altogether different from that in the rest of Brazil.

Flora

In this immense region, ruled by the stately Amazon River, the possibilities for beekeeping are almost unlimited.

The wild flowers which grow in the huge forests of this region supply nectar during the whole year. Pollen is plentiful! On account of the countless varieties of flowers the bees can choose the flower they like best, and it is very interesting to observe that the bees choose a certain flower and as long as that particular flower is in bloom they do not work on any other at all.

I have in my place a shrub named wild mint **(hortela brava)** which yields nectar from May until July. The bees forget the fruit bloom and other flowers to visit exclusively the wild mint. Is there a reason for that behavior? The fruit bloom comes mostly from apricot, zapot, passiflora **(maracuja)**, jambo, caju, etc., besides the orange which can not be well used for nectar purposes because it blooms during the rainy season.

Seasons

In the equatorial region we have only two seasons: the dry season, from mid-June to December (in some places to January), and the rainy season, from December to the beginning of June. Of course, the rains do not interfere with brood rearing which goes on during the whole year. If the bees have plenty of stores it is the best time of the year to rear brood.

Work of the Bees

I own a 75-acre plot of land some 60 miles northeast of Belem, capital of the State, where I raise cattle, poultry, hogs, and last but not least, I began three years ago to keep bees. As I said before, the first honey flow of the year in my place comes from the wild mint. After this flower the bees visit the passiflora, the guyava flower, and very seldom the mango trees. In other places, as in Belem, the bees work on the mango trees, and on the urucu flower, as there are not many flowers available as in the country. During the honey flow the bees take about a fortnight to fill a super with drawn combs. Our frames measure only 5 x 9½ in., and there are 15 frames for each super.

In my territory the Italians are kept only by very few beekeepers. As a matter of fact, I know only five of them, including myself; three right in town, and two out in the country. I heard some time ago that in a high school in Belem the Freres Maristas (a religious order) kept also bees, but I have not seen them yet. It is very easy to explain why so few Italians are kept. In the first place honey here is used only as a medicine for colds, and secondly, there are some native bees that also produce honey.

Native Bees

The principal native bees, which produce honey are: the urussu **(Meliponae scutellaris)**; jandaira, mandassaia, mandurim, and tutujuba. In my territory, of these Meliponae the urussu is the best known, and almost all the native honey comes from that bee. They are kept in rectangular boxes measuring 22 x12x19½ in., made of 1-inch boards nailed together. If there is a small space between the boards, it is covered with clay to avoid the entrance of the ants. A small hole about the diameter of a common pencil, bored on one side of the box is the entrance for the bees. This entrance is surrounded by a crownlike ring.

The bees build their combs horizontally—the contrary of the Italians—in rows, one above the other, with the openings directed upwards. The cells for the brood are hexagonal, like the Italians. The honey and pollen are mixed together and this mixture is called sambura, and is placed in spherical deposits made of wax.

The bees place the sambura (food) for the larvae in the cells. On the surface of this food the queen lays an egg, and immediately after, the bees seal up the cells. No nurse bees are needed.

After the young bees emerge all cells are destroyed, and a new comb is started. No foundation needed. There are no queen cells, no drone cells, all cells are alike.

When a swarm occurs, or increase is made, the old queen remains in the parent box, and the new queens start new life in a new box or in a hollow of a tree. Every three months the boxes are opened on a rather dark night to take out the honey, and, if possible, an increase is made then. In the best of conditions the maximum yield per box is about 12 to 15 pounds per box.

The honey produced by these bees, which belong to the family of the Meliponae, has a splendid flavor and taste, but, as the bees do not ripen it, it is watery and rather acid. This honey contains an average of 45 per cent of sacharose, 25 per cent of levulose, and the rest is water.

Honey Flow

The main honey flow starts after the heavy rains have ceased at about the middle of May and lasts until January, with a pause in October and November, which are the driest months of the year in our territory. As before said, it depends on the regions where the apiaries are located to be sure from what flowers the bees get their nectar.

Swarming

Swarming generally takes place sometime between July and the end of August. A friend of mine told me that a swarm came out in April and another in September. I did not have any at all, at least none which I could see, as during the swarming season I was in town where I do not keep bees.

From February until the beginning of June there is very little surplus honey available, if any at all.

However, at the end of July the bees have already done their work and it is possible to have the first crop of the year if the colonies are strong enough to gather the nectar for that time. Usually the harvest takes place in October if the beekeeper does not want to take the honey sooner than that. For my part I prefer to extract at the end of the season to spare time and work.

Comb honey is almost unknown here, but in a very near future I shall start as soon as I can get the dollar exchange to buy the supplies which I need for that purpose.

Hives

Our hives are of the Schenk, Dadant, and Langstroth models. The hives are placed on stands with water around the legs of these stands to avoid the invasion of the red ant.

Enemies

We must be very careful with some ants, fire-ants, and the terrible red ant called locally Zara-Zara, which comes as soon as it is dark and ravages totally a colony of bees. It is remarkable what these ants do when they can not reach the hives because of the water surrounding the stands and when the hive is placed under a tree or very near it. They climb up the tree until they reach the outside branches of the tree, then let themselves fall on the cover of the hive and from there they enter the hive. Just a modern way to attack—by air.

Besides this red ant, we have another enemy of the Italians—a small black native bee called uirapua or irapua, which produces honey also. The irapua comes mostly when there is a dearth of nectar, especially in March, a very rainy month, and if the colony is weak or medium, you can be sure that they will kill all the Italians and rob the honey from the hives. As I was absent during the rainy season I lost ten colonies, six in one season and four in the following. Of course, these were very weak colonies and I did not know then that there was such a terrible enemy. I think the best way to avoid robbing is to reduce the entrance when the colonies have not attained full strength, don't you? Or is there another way to avoid this robbing during the rainy season?

Here in our region no disease of bees has been observed thus far. In the south of Brazil with the cold it is probable that some disease occurs, but as I said, this article deals only with conditions which apply to our Amazon Valley.

Belem-Para, Brazil.

Siftings

"No one knows how far a few sections of honey to a half dozen families living near an outapiary will sweeten for miles around until he tries it. The few receiving these little tokens will be your friends." —G. M. Doolittle in his book "Management of Out Apiaries".

Beekeeping Rationalized

By Merritt I. Taylor, Richmond, Virginia

"No generation of Americans really finishes the business at hand. Each one unlearns what was false in the preceding generation, each learns its own truths and adds them on to the ones inherited from the past". So wrote Paul H. Douglas, little knowing how aptly his expression applies to apiculture.

Beekeepers of old have been adding to the truths by reading, observing, thinking, and experimenting with the result that we are entering a new era with improvement of stock through breeding and artificial insemination, control of American foul brood, and the solution of the wintering problem.

That wintering has been a problem was clearly stated by Dr. E. F. Phillips, who said, "Because of divergent methods and views about wintering this remains the most serious single obstacle to success in the management of bees". Prof. A. J. Cook wrote, "Wintering was the rock on which some of the most successful have split." Dr. Miller said the two great problems were swarming and wintering. Wintering has been principally a man-made problem, and we add to its complexity by assuming that the bees' way of life is unnatural.

A careful analysis of the view of authorities on wintering from Huber through Langstroth and Quinby to the present discloses more agreement than disagreement. Practices vary, but the principles are the same the world over.

The stumbling block to successful wintering has been the failure to provide not part, but all, the essential conditions in unison, making it easier for the bees to do the adjusting. The winter cluster adjusts itself automatically and efficiently to extreme temperature changes. As beekeepers, we can help or hinder in this life cycle, the degree being reflected in the so-called, "Winter loss, spring dwindling, and dysentery".

To Francis Huber, the blind thinker who caused others to see, we are indebted for many important facts about wintering. His experiments proved that bees breathe, that air is indispensable, and that bees need more fresh air in proportion than other animals.

Huber pointed out that bees generated heat by combustion and that the heat of the cluster is certainly derived from the gathering together of a number of bees in the same place and that it (heat) is absolutely essential to them and their brood, that it (heat) should be independent of the temperature of the outside air.

Huber emphasized a fundamental of clustered bees when he wrote, "The very existence of bees is therefore in direct dependence on the continuity of their fanning. Though called to so many different labours each of these insects must occupy itself constantly in the duty of maintaining the air at the necessary degree of purity".

Outdoor Wintering Preferable

Bees can be wintered perfectly indoors where temperature and humidity are controlled, but indoor wintering has inherent disadvantages of excessive labor and slower build up. Successful outdoor wintering is preferable and can be achieved if we work in harmony with the principles of heating and ventilating.

Almost all beekeepers pay lip service to, and can cite the essential conditions for successful wintering but few, if any, put them all in practice, wherein lies the great divergence in results. To our Creator goes the credit for the amazing ability of the winter cluster to overcome the handicaps imposed by man and accidents.

Langstroth gave us Oettl's golden rule of wintering. "Keep your stocks strong". The necessity of having plenty of stores, i.e. pollen and honey, is taken for granted. Everyone agrees on a queen of vitality. Langstroth supplied more of the formula when he said hives should have a good windbreak, abundant ventilation, and a dark color to absorb the heat.

The instinctive shying away of beekeepers from Huber's essential of allowing the winter cluster to have sufficient fresh air is a prevalent mistake. Another is the failure to realize that white paint reflects

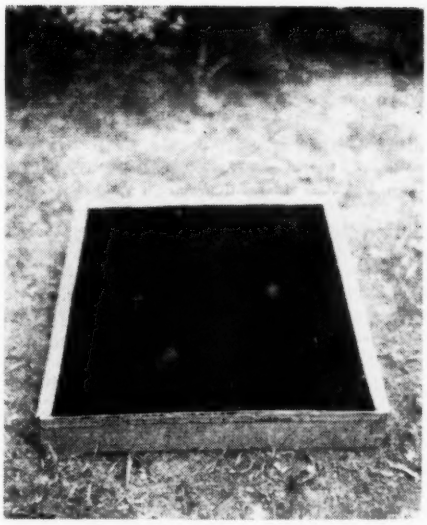
the sun's radiant heat in winter just as it does in summer. By no stretch of the imagination does a "windbreak" mean that hives should be shaded in winter. Failure to reduce or to drain off condensation is largely responsible for mediocre results. Almost all writers confuse "radiation" with convection and do not take into consideration that loss of heat by radiation is a matter of the difference in temperature between the inside surface of the hive and the surface of the cluster. The air inside a packed or an unpacked hive is about the same temperature which is a secondary consideration, the loss of heat by convection being much less than the separate and greater loss by radiation. Over emphasis on the conservation of heat in the hive leading to the excessive use of packing is detrimental, control of condensation being of more importance.

In 1902 one Henry Vogeler took out letters of patent to provide hot air by means of an electric light bulb "to warm and dry the inside of a beehive and preserve colonies during very cold weather". Hot air in beehives in winter has recently been revived but it has inherent disadvantages and will not come into general use.

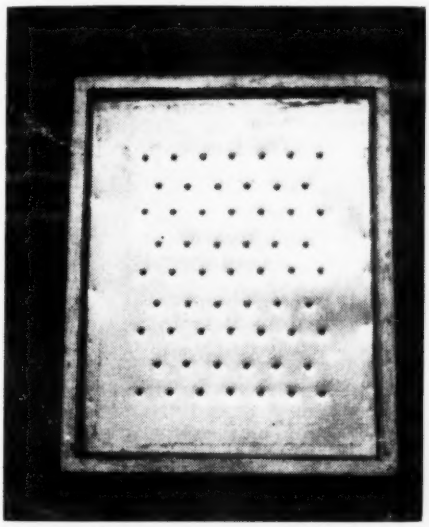
"Ventilation", the other method of controlling condensation, has been recommended by many authorities and this siphoning off of heat from the hive has been "the rock on which they split". The commonly used auger hole is inefficient, besides top entrances and holes are objectionable in summer.

Prof. Cook was confident the problem would be solved, "and that speedily" and he was correct, for from his time to this is but, "As a day in the sight of the Lord". To quote Prof. Cook, "Excessive moisture—given off by the bees—needs warmth to drive it from the hive and some means to absorb it without opening the hive above." To absorb or to collect are somewhat the same and the answer to this problem was partly demonstrated in the glass hive wintered in Richmond in 1947-48, the condensation being collected above the cluster and drained from the hive, the colony wintering perfectly.

With a cover, as illustrated, the condensation is collected and drained from the hive without falling on the bees and combs. A bottom entrance is then sufficient, thus enabling those with violently opposed views to get together on the rock, Huber having explained that bees created



A removable sheet of aluminum, black on one side for use in winter, aluminum finish for summer.



The moist air filters through above the cluster, condenses on the inside, and drains out. The holes are bee space. There is a slideable set of holes at the inside ends allowing for ventilation in summer—closed in winter. Holes are bee space.

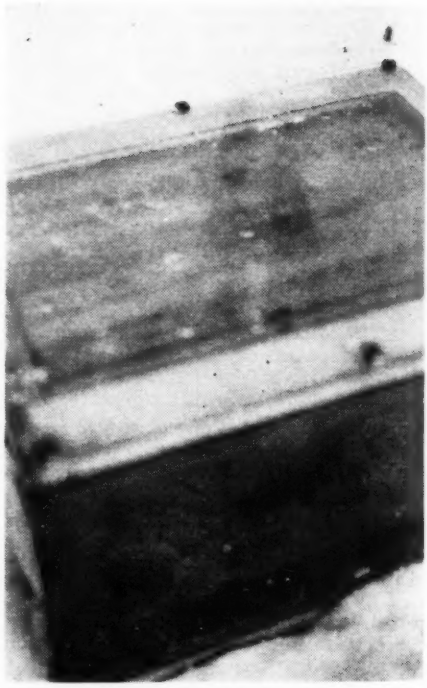
the necessary circulation of air both inside and outside the cluster. We make a mistake to forget that bees ventilate in winter as well as in summer. The low humming and rapid shutter-like movement of their wings in cluster is evidence of this. Huber's anenometer placed at the hive entrance showed the intake and outflow of air at all times. Huber pointed out that "bees need more air in proportion than other animals", so why violate this essential? But top entrances do not permit more than normal heat loss by convection and could well be eliminated.

The wintering problem has been made complex by overlooking the fact that the cluster cycle is an integral, related process and that its operation is affected by any extreme condition such as white paint, shade, and too heavy packing which throws it out of balance. Huber in 1814 was one of the first, if not the first, to point out that cluster heat was generated by combustion. C. L. Corkins* restated this when he said that cluster heat was created by metabolism and that it was not increased in quantity with falling temperatures. Herman Rauchfuss' conclusion that the cluster starves rather than freezes was timely.

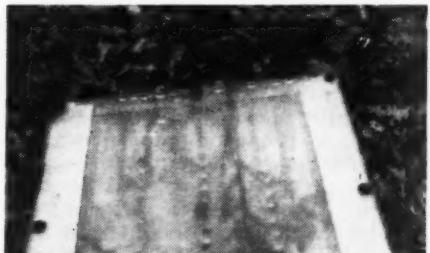
The winter cluster makes adjustments to changing conditions, but it is at deep rest, at peace with itself and the world, like a person reposing in a comfortable bed. The cluster with a surface temperature of 46 degrees adjusts itself to falling temperature by reducing the area of its exposed surface and continues the conservation of heat by thickening the rind, packing together in a denser mass, entwining the body hairs, by more frequent interchange of outside bees, and by overlapping their wings which make a transparent covering preventing the loss of radiant heat.

As far as the well being of the cluster is concerned, if we provide a windbreak of woods other than coniferous, a sheltered southern slope, a covering of snow or packing up to an inch in thickness with a black color, we can disregard the heat loss from the hive by convection, i.e., to the air. The important heat loss is that of radiation, not to be confused with the loss of heat to the air in the hive. The essential condition is mobility of the cluster in a dry hive — made possible by the absorption of the sun's radiant heat and collection of condensation.

*Metabolism of Honeybees in Winter Cluster, Bulletin 187 and 175, University of Wyoming, Agricultural Experiment Station.



This picture was taken when I raked the snow off the top of the hive. A glass will show blobs of water pretty well scattered.

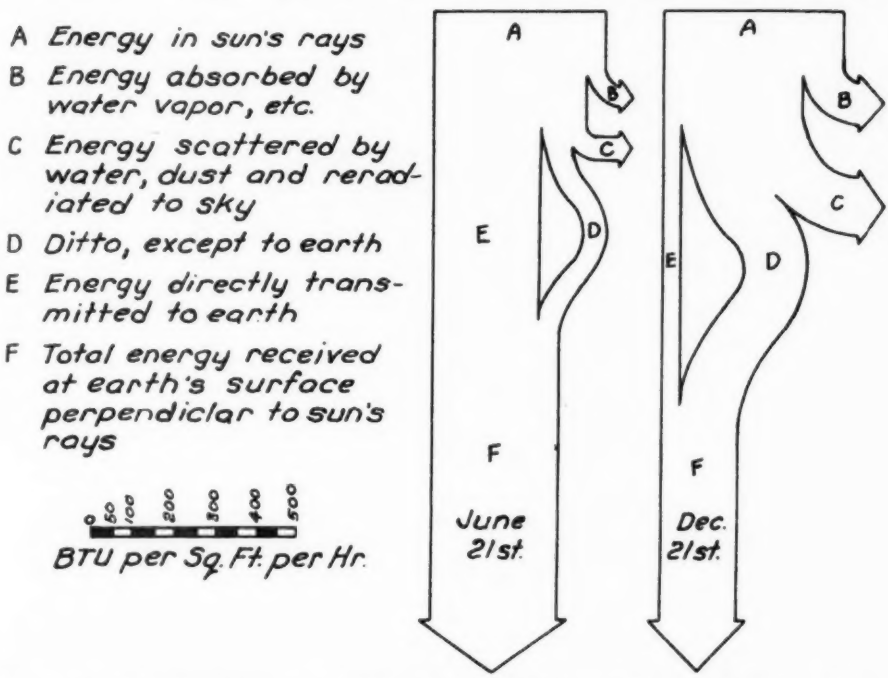


At the far end or top entrance you will note 9 large blobs of water hanging at the outlet, also some more hanging on the inside of the top—the warm air hits the cold top and condenses. If it does not fall back on the bees we have a dry hive.

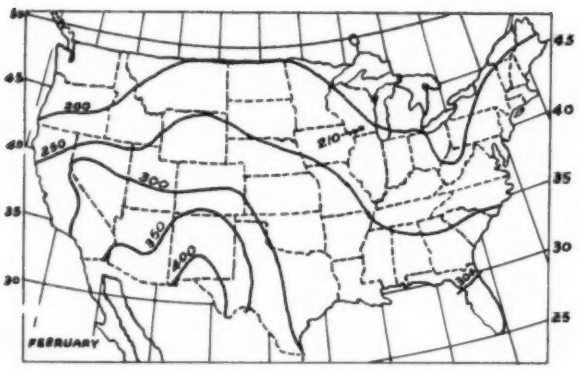
Radiant heat known to the Romans and rediscovered in the 1920's by an Englishman has been used by the winter cluster ever since Creation; i. e., until we beekeepers nullified the benefit of radiant heat by white paint, winter shade, and too much packing. Because the Arctic winds bring low temperatures to us, we northern beekeepers overlook the fact that there is heat in the winter sun. An excellent graphic picture of what happens to the heat in the sun's rays when coming through the atmosphere surrounding the earth was illustrated by Harold M. Hawkins of the Engineering and Industrial Station, University of Florida, in the June 1948 issue of Domestic Engineering which is reproduced in part.

The arrows are drawn to scale, number 1, representing the sun's energy June 21; number 2, December 21, the shortest day of the year. As the sun passes through the earth's atmosphere it looses part of its heat by the absorbing and dissipating effect of the clouds, carbon dioxide, water vapor, etc., but a comparison of Fig. 1 with Fig. 2 illustrates the much overlooked fact that there is a considerable quantity of radiant heat coming through the cold winter air if we would only allow it to get into our bee hives instead of persistently keeping it out with white paint, heavy packing, and shade.

Average Solar Radiation in the U. S. by Sigmund Fritz and Torrench H. MacDonald U. S. Weather Bureau in the July issue of **Heating and Ventilating** is of considerable interest to northern beekeepers and includes a chart for each month (Feb. shown next page) from which the sun's heat is readily ascertainable on a horizontal surface at sea level. The degree of cloudiness, atmospheric pollution, ground reflection, elevation, variation in solar trajectory, etc., have been included. The heat input of the sun is given in LY (one LY is the abreviation for Langley and equals one gram calorie per sq. centimeter) which multiplied by factor 3.69 indicates the heat in BTU's per sq. ft. of horizontal surface. The cover of a black beehive (1.86 sq. ft.) at 43 degrees N. latitude (Madison, Wis.) could absorb 90 per cent of 3.69x210 LY


A Energy in sun's rays
B Energy absorbed by water vapor, etc.
C Energy scattered by water, dust and reradiated to sky
D Ditto, except to earth
E Energy directly transmitted to earth
F Total energy received at earth's surface perpendicular to sun's rays
0 60 100 200 300 400 500
BTU per Sq. Ft. per Hr.
A
B
C
D
E
F
June 21st.
Dec. 21st.

Above A-A shows the amount of heat in the mid-winter vs. mid-summer sun. F-F is the relative proportion of radiant heat striking a bee hive.



February chart showing sun's heat on a horizontal surface at sea level.

or 774.9 BTU per sq. ft. or 1296.4 BTU per day per hive cover. Of course, some of this heat would be reradiated to the air outside and inside the hive but there would be additional heat picked up on the sides and front as the sun travels from east to west. The temperature of the inside surface of the cover has a greater effect on the cluster than any other surface in the hive, because it is the only surface which can absorb from or reflect heat to the cluster, making it impossible for the cluster to have mobility of movement at frequent intervals.

Fig. A represents a winter cluster the surface temperature of which is 46 degrees F. The water vapor rising from the cluster is collected and drained from the hive. The windbreak with a black surface performs two functions, i.e., it reduces the loss of heat given off to the air or wind around the hive and the black surface absorbs the heat from the sun which is transferred by conduction to the inside surface of the hive. As the earth revolves from west to east the heat is absorbed by the surface exposed to its rays, the hive cover being the most important of all. Approximately 70 percent of the heat dissipated by the cluster is determined by surface temperatures which indicates the importance of solar heat. The winter cluster can adjust itself to any degree of cold found in the United States, providing it is dry, protected with a windbreak (black packing not too thick), and has the benefit of the sun's radiant heat.

Huber gave us the cardinal principle that the cluster generated heat by combustion and that the cluster temperature was independent of the outside air. He also pointed out that the cluster needed more fresh air than other animals. Langstroth concurred on the need for fresh air. He also told us that no color was so good as a dark color for outdoor wintering and emphasized the fact that condensation was the cause of winter loss, spring dwindling, and dysentery. Herman Rauchfuss' findings that the cluster starves rather than freezes and Corkins' experiments showing that the cluster consumed less rather than more honey with falling temperatures was a restatement of Huber's auspicious pronouncement. Wintering on summer stands will cease to be a problem when we work in harmony with nature's laws, treating the cluster as a living working unit providing all the essential conditions in unison.

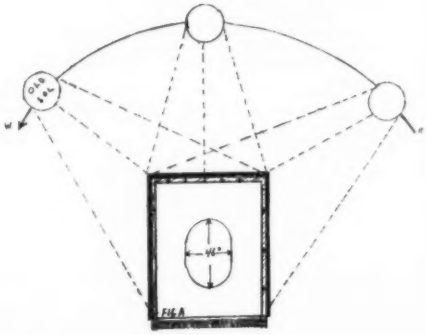


Fig. A

Second Glances

By C. M. Isaacson

The fascination of beekeeping is such that even such a severe initiation as Mr. Selwyn's but serves to cement more securely the tie holding the beekeeper to his bees (page 545). The mention of the fine comb honey produced by his father's black bees brings to mind how seldom we see really fine comb on grocers' shelves nowadays. Either the beekeeper or the bees have lost the art—perhaps mainly the former.

Multiple queen colonies are not one colony — they are several working in the same set of supers (page 548). Mr. Phillips is technically correct but in the other observation — that the presence of queen cells begun when one part becomes queenless is proof—I can not quite agree. A single-queen colony that is Demareed will **nearly always** begin cells in the raised brood. Remove bees and unsealed brood enough distance from a queen and a queenless feeling will quickly appear. For dual-queen colonies, though, Mr. Phillips' side nuclei hives should be very good.

Big crops and weather—they are directly related. An average yield of 200 pounds must of necessity mean good honey gathering days during the period of the main bloom. And Mr. Wright's observation that dry periods aid in making sweet clover secrete heavily is in line with what we find in this locality also. The past several years have been ones of cool and wet spells in July and consequently low crops. Here, too, the willow yields very heavily but days to work it are limited by cool spring weather.

"The Wonder Honey Plant" is the title in part of the article on Aguinaldo, and most certainly deserves the name when bees can store two to three hundred pounds from this one source (page 554). And the approximate English translation of "Christmas gift" is interesting — and appropriate, for it is truly a gift of great value to the Cuban beekeeper. It is also of interest to know that our morning glories are of the same species.

The darker races of bees are again getting considerable attention, and both Carniolans and Caucasians have their adherents. Mr. Swisher favors Carniolans, especially in poor seasons (page 556). Here, I have found that Caucasians and Italians are nearly equal, with Italians having perhaps a slight advantage in honey production and Caucasians in wintering. I have not tried Carniolans except on a scale too small to really find out anything but that the strain I secured was very bent on swarming. But the article's concluding advice is very good—find a **strain** of bees that will be best fitted to your particular locality.

Field applications of DDT dust does not seem to cause a serious loss in honey bee colonies, but actual contact with the dust will result in heavy mortality of bees actually at work. This seems to be about the conclusions reached through the experiment reported on page 558. Direct contact is the main danger; the residual action is less to be feared. And evidently there is no appreciable repellent quality in DDT as far as honeybees are concerned.

A victory for Mrs. Nielsen! At last a way to "keep" those honey cookies—make them as icebox types and bake them only a few at a time! She still admits failure in the main for **after** baking, which is as it should be—honey cookery is **good** (page 561).

Annual requeening, once much practiced, has largely been discarded in many places. There are several reasons, as Mr. Deyell mentions—that at times better queens might be removed than the new ones introduced, and that in modern beekeeping practice, especially with double brood chamber hives, bees will supersede most queens of their own accord. I clip all queens introduced and it is surprising the following spring to see the large proportion of **unclipped** queens. Not annual requeening, but whenever a poor one is found, whether one month or two years (page 556).

Constant improvement of material supplied and methods of publicity is keeping the work of our American Honey Institute as valuable as ever. Every beekeeper can see the need of this type of work now—let's support it and use it.

Apiary Regulations of the State of Florida

Florida's embargo on the movement of bees on combs and used beekeeping equipment from other states was modified by action of the 1949 Legislature so as to provide for the entry of these commodities under permit.

Beekeepers in other states who contemplate moving into Florida must comply with the following regulations:

"Rule 41 A-3. Any beekeeper, dealer, firm, or organization who desires to move into Florida from other states or countries any colonies of bees, apiaries, bee yards, or used beekeeping equipment shall comply with the following regulations:

"Sec. A.

(1) Make application to the Plant Commissioner of the State Plant Board for a permit to do so, filing with the application a statement as to the location of the colonies, apiaries, or bee yards to be moved, the number of colonies, and nature and number of pieces of used beekeeping equipment, together with their destination in Florida.

(2) Furnish the Plant Commissioner with a valid certificate of inspection signed by the Apiary Inspector, Entomologist, or other responsible official of state of origin certifying that all of the colonies, apiaries, or bee yards owned or operated by the applicant, his agents or representatives have been inspected annually and at a time when bees are actively rearing brood, including one inspection made within a period of thirty days preceeding date of shipment, and that no American foulbrood, European foulbrood, or other infectious diseases have been found in any colony, apiary, or bee yard owned or operated by the applicant, his agent or representative, for a period of two years prior to the date of shipment or movement; and furthermore, that the used beekeeping equipment has been disinfected in accordance with the requirements of the Board.

(3) Agree to notify the Apiary Inspector of the State Plant Board at least ten days before the date of shipment into Florida as to the approximate number of colonies, as well as the number of pieces of used beekeeping equipment, together with the destination thereof; and to hold the shipment intact after arrival in Florida until such time as it may be inspected by the Board's inspectors.

"Sec. B.

When all of the conditions referred to in Section A (1), (2), and (3) have been complied with, the Plant Commissioner may then, if the application is approved, issue to the applicant a permit authorizing the movement of the bees and used equipment into the State. Permits must be available for examination by the Board's inspectors, or other appropriate law enforcement officers, until surrendered to a duly authorized inspector of the State Plant Board."

"Rule 41 I. Any and all bees and used beekeeping equipment subject to the provisions of Chapter 584, Florida Statutes, 1941, as amended by Chapter 23,674, 1947, whether in transit or in the hands of the possessor, may be held for inspection by an inspector of the State Plant Board, regardless of whether or not they are certified, and if such bees or used beekeeping equipment are found to have been moved or transported into the state in violation of the rules or regulations of the State Plant Board, or if found infected with any contagious or infectious disease, such bees or used beekeeping equipment must be deported or destroyed within twenty-four hours upon the order of the State Plant Board."

Florida's experience with bees that have come to us from other states has not been a happy one. This is evidence to support the belief that some certificates were not worth the paper on which they were written. Whether this was due to carelessness or indifference on the part of out-of state inspectors, or to a general contempt of a certificate system on the part of officers, high and low, of the states of origin, cannot be stated. Because of this experience, the Plant Commissioner has ruled that all certificates issued by field inspectors in other states must be sent to the officer in charge of his apiary inspection department, for his official okay on the certificate before it is sent to Florida. These state officials before placing their okay on a certificate are duty bound to check with care the records of the apiaries concerned, to ascertain whether or not they have been free for the specified two years. Not only must a single apiary meet this requirement, but all of the apiaries owned or operated by the applicant must have been free from American foulbrood for this period. The presence of American foulbrood in even one of several apiaries owned or managed by a single individual shall disqualify the owner for movement into Florida. Beekeepers in other states should be advised that any bees on combs or used equipment moved into Florida may be held for inspection regardless of whether or not they are certified and, if found to have been moved into Florida in violation of the Board's rules and regulations, or if found to be infected with American foulbrood, all the bees and equipment must be removed from the state, or destroyed within twenty-four hours. The revised law requires members of the

(Continued on next page)

13th International Beekeeping Congress Held in Amsterdam August 22-27, 1949.

By Richard Barnes, Official Delegate of British Beekeeping Association

Local arrangements for the International Beekeeping Congress were carried out by the Society for the Promotion of Beekeeping in the Netherlands, which has a membership of over 33,000.

Delegates attended from Australia, Belgium, Denmark, Egypt, Eire, Spain, Finland, France (28), Great Britain (57), Italy, Norway, Sweden, Switzerland, Turkey, U. S. A., Germany, Israel, Luxembourg, and of course well attended by Dutch representatives.

Lectures were given by Dr. Fraser, Dr. Colin Butler, Mr. Philip Milne, Mr. Ribbands, Mr. Graham Burtt, Mr. Dennis of England. Other speakers included Dr. Rousseau (France), Roy Lunder (Norway), Dr. Evenius (Germany), Dr. Remy Chauvin (France), A. Lehmann (Switzerland) Prof. Brizard (France), Dr. Gontraski (Germany), Dr. Pillon (France), Dr. Minderhoud (Holland), Dr. Hammer (Denmark), and Prof. J. Guillon (France).

Dr. Anna Maurizio and Dr. Morgenthaler of Switzerland with James I. Hambleton of the United States, proved outstanding personalities, the first named giving a lecture on pollen analysis while the other two acted as chairman on the two days. Mr. Hambleton also gave an illuminating address. Lectures were all given in the language of the speaker and afterwards interpreted into either German, English, or French by Mlle. Nora Baldensperger, daughter of the "Grand Old Man of Beekeeping", who received enthusiastic applause. It was noted that Dutch, the language of the country was not used in these official lectures. At the official dinner at the close of the Congress which was attended by the Minister of Agriculture and the Burgomaster of Amsterdam, Dr. Richard H. Barnes returning thanks for the British delegates pointed this out in his speech in French, Dutch, and English.

The Congress included an official evening reception by the Burgomaster of Amsterdam who returned from an engagement abroad especially to receive and welcome the delegates. A full program of excursions in the neighborhood was arranged for the wives of the Congress men.

Perhaps the most important event of all was the birth of APIMONDIA, a world organization of beekeeping, with the object of promoting apiculture in the widest sense of the word. Only preliminary work could be done as delegates had received no official authority from their countries. A working committee of seven was elected under the chairmanship of Dr. Morgenthaler in whom everybody had implicit trust, realizing that he was the "man for job". It was also agreed to accept the kind offer of Mr. Illingsworth, secretary of the Apis Club, that their magazine the "Bee World" should be, for the time being, the official organ of Apimondia in English. It was hoped to publish similar journals in French and German. The British delegates provisionally extended an invitation for the next Congress to be held in England in 1951. This offer was greeted with great enthusiasm.

Numerous friends were made and it is felt that nothing is wrong in international relations in the beekeeping world, at any rate.

(Continued from previous page)

State Highway Patrol and County Sheriffs to stop trucks transporting bees to determine whether or not the driver has in his possession a valid permit.

Beekeepers who plan to move into Florida should communicate with the Plant Commissioner, or Apiary Inspector, of the State Plant Board, in Gainesville, Florida, at least thirty days prior to date of shipment in order that they may be fully informed as to the procedure that must be followed in order to obtain permits.

The type of disinfection that will be required for used beekeeping equipment will be determined shortly. Such disinfection must be performed under the supervision of inspectors of the states of origin.—Arthur C. Brown, Plant Commissioner, State Plant Board of Florida, Gainesville, Florida, July 19, 1949.

Asked and Answered

What to Do With a Late Swarm

Question: I have a small swarm. What should I do to make it strong enough for winter? Would a queen solve the problem since it is so late in the year (August 3)?—Fred Putnam, Ohio.

Answer: It seems doubtful if your weak colony can build up sufficiently populous in bees to go through the winter. You might try exchanging places with a strong hive of bees—that is, putting your weak colony on the stand occupied by a strong colony and putting the strong colony on the stand occupied by the weak one. If this is done in the middle of the day when bees are working well, the field bees of the strong colony will naturally enter the hive containing the weak colony after the hives have been exchanged. Furthermore, some of the old bees from the strong colony will go back to the stand occupied by the weak colony and thus it will be strengthened. This is sometimes done in the spring of the year when equalization of colonies seems necessary. Be sure to select your strongest hive of bees to exchange for the weak colony.

Iron Drums Versus Galvanized Tanks for Honey

Question: Is storing honey in iron drums as good as using galvanized drums?—B. V. Johnson, Fla.

Answer: We do not know that there would be a great deal of choice between galvanized drums and black iron drums from the standpoint of the effect on honey. As a matter of fact, there is a chance for some contamination regardless of which were used, if the honey were stored for a good many months. Galvanized steel does no harm for honey extractors or temporary honey tanks but if the honey remains in contact with it month after month it darkens the galvanizing, showing that the honey has some action on the zinc. We admit that galvanized honey tanks are often used for long storage but neither galvanized nor black iron is as safe as tin-coated stock. The five-gallon tin can, new and bright, is really the safest container if the honey is to be stored a long time.

Is Honey Edible After the Use of Cyanogas?

Question: I had to destroy some bees that had been in a home for three years. I used Cyanogas and the only way that I could use it was by pouring it directly on the combs. Would this honey be any good to eat?—Herman Elbrecht, Terre Haute, Ind.

Answer: Honey which has come in contact with Cyanogas powder is unfit for human consumption. The honey in the comb that has come in contact with Cyanogas fumes, provided no powder fell on the combs, can be used as a food after the combs have been well aired. When Cyanogas is used to destroy a hive of bees as it is sometimes necessary when colonies of bees are diseased, the Cyanogas is placed on a stiff cardboard paper at the entrance of the hive, then pushed into the hive under the frames. The gas, being lighter than air, travels up and kills the bees immediately. You will thus understand that when Cyanogas is used in this manner the powder does not come in contact with the bees or combs of honey.

Supersedure and Swarming

Question: What is the relationship between supersedure and swarming? In other words, why, under similar conditions, do bees swarm sometimes, and at other times merely supersede? Are there different conditions in these instances?—J. Herbert Fretz, Pa.

Answer: This question is not easily answered. Some time ago we asked two of the leading beekeepers and beekeeping authorities of this country to write an article on the relationship between supersedure and swarming and to explain just why, in some instances, supersedure cells may lead to swarming. Neither of these two beekeepers has complied with our request as yet. As you of course know, prior to the time a swarm issues bees construct quite a number of queen cells—perhaps a dozen or more—and these cells are usually found at or near the bottoms of the brood combs, whereas when supersedure occurs, from three to six cells are constructed, usually near the centers of the brood combs. When queen cells are constructed the bees have in mind either swarming or supersedure. However, when a rapid honey flow develops during the time supersedure cells are built, the bees may decide to swarm rather than to supersede. It would appear therefore that conditions that prevail govern the be-

havior of the bees. As a rule, a colony will supersede its queen when she is found to be failing. However, in some instances old queens are tolerated even after they have outlived their usefulness. In fact, some colonies tolerate old queens until they quit laying and die. Such a colony then becomes hopelessly queenless. Just why some strains of bees tolerate very old queens while other strains supersede the queens at a time when they begin to fail is somewhat of a mystery.

Introducing Queens

Question: About August 15 I ordered two queens for requeening and was unable to find the old queens to destroy them. As my time was limited I put the new queens in anyway. Do the young queens have a chance of survival under these conditions or what is apt to happen? Would it be practical with populous hives to cage the old queen and then order with the assurance that the queens could be readily removed on arrival of new queens?—Harold J. McKenna, Ky.

Answer: Regarding the two queens you introduced without removing the old queens, it is a little difficult to say what happened to the new queens. If there was a honey flow on at the time, the queens that were introduced may have been accepted. However, when liberated from their cages they would likely meet the old queens and a battle royal would occur. It is probable that the queens introduced, being younger and more agile, might overpower the older queens and kill them. If you have some means of identifying the queens in your hive at present we would like to know which queens, the old or the young, are now present in the hives. It is possible, as you suggest, to cage the old queens a few days before the new queens arrive and then remove them from the hive at the time the new queens are introduced. There would be no objection to removing the old queens before the new queens are received. As a matter of fact, this plan would seem advantageous because the colonies would then have an opportunity to realize their queenlessness before the new queens were put in the hives and might be in better condition to accept the new queens.

Use of Queen Excluders and Queen and Drone Traps

Question: On page 209 of the ABC and XYZ it says that queen excluders are all right for worker bees to pass through but on page 210 it says that the wire queen and drone trap is not all right for loaded workers. Would you please explain why? —Lee W. Shirey, Pa.

Answer: Queen excluders are used by the majority of beekeepers over the country in the production of extracted honey. They are not considered necessary in the production of comb honey because queens rarely if ever go up into the comb honey sections to lay eggs. There are some extracted honey producers, however, who do not use queen excluders because they claim that queen excluders are honey excluders to a certain degree. The queen and drone trap placed at the entrance of a hive is intended to be used when swarming is likely to occur, especially if the owner of the bees is obliged to be away from his apiary during the middle of the day when swarms usually come out. We do not advocate the use of these queen and drone traps throughout the season because they tend to impede the progress of worker bees leaving and entering hives. As you perhaps know, bees that return from the field loaded with nectar are met by what are called house bees who unload or take away the nectar from the field bees with their tongues as these fielders regurgitate the nectar from their honey sacs. It is probable that one house bee does not take the full load of nectar from the field bee. These house bees distribute the nectar as it is needed, either in the brood chamber or the cells of the supers above the queen excluders, if they are used. You will thus understand how these partially filled house bees could pass through a queen excluder much more easily than could a field bee filled with nectar. You will also understand that when queen and drone traps are used they are supposed to be on the hive entrances for a short time during the swarming season. If they are left on the hives during the entire season, some of the hives may become hopelessly queenless because a young virgin queen might emerge and kill the old queen which would be unable to get out of the hive to accompany the swarm because of the queen and drone trap. After having killed the old queen, the young queen could not get out through the queen and drone trap to fly on her mating trip and thus the colony would eventually become queenless.

A Talk to Beekeepers

By M. J. Deyell

My 186th Talk

If you will divide 186 by 12 you will know how many years I have been writing these talks to beekeepers.

I sometimes wonder how a newspaperman, who has to fill a column or more each day and get his copy in before the deadline, must feel. It is possible that he gets panicky at times, especially if ideas fail to materialize. I imagine at times he is like a well pumped dry, and that is how I feel once in a while—but not often.

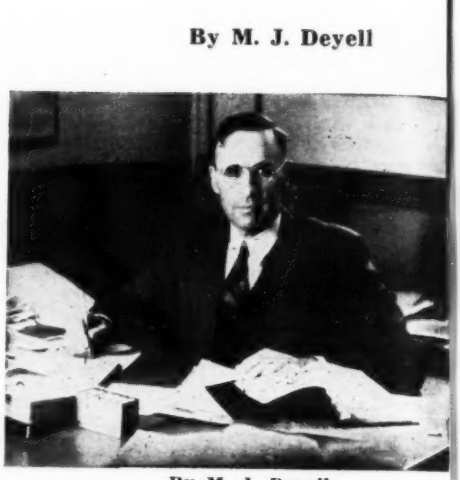
Since writing my September talk I have been on vacation for two weeks and purposely tried to get away from beekeeping and problems pertaining to my work. That is what a vacation is for.

I recall taking my family in 1939 to the World's Fair in New York City, then on through the New England States, west over the White Mountains and Green Mountains to Lake Champlain, north to Montreal and Ottawa and south through New York State and home.

Before starting I promised my family I would not talk bees nor visit with beekeepers along the way and I kept my promise. As we traveled up through Vermont and across the line to Quebec it was difficult to keep going straight ahead, especially when we saw very attractive apiaries along the road with honey signs in French. I should like to make that trip through Quebec again some time when I have time to visit some of those beekeepers. Many fields of buckwheat were seen south and east of Montreal.

My Ontario Trip

When starting on this vacation I did not make a resolve with respect to keeping a straight and narrow path to avoid bees and beekeepers so, after passing through Toronto, traveling over the Queen's Highway which, by the way, is one of the best highways on this continent, I came to the city of Whitby. A. A. Walker, a well-known beekeeper, lives just west of this city. His well-kept apiary is visible from the road. In times past when I had met Mr. Walker at the Provincial meetings held in Toronto, he had



By M. J. Deyell

censured me for not stopping long enough to at least say hello. Well, this time I decided to pay him a short visit. As I approached his home there was no sign of life except the bees working hard back of his dwelling. I pinned a slip of paper on his door on which was written, "Jack Deyell called on August 27—please be home when I call again." I shall likely be hearing from Mr. Walker.

While spending a day at the Toronto Fair which, by the way, is one of the greatest fairs on this continent, I saw two splendid honey exhibits, one by Mr. Ager, a member of the Canadian Council who produces and packs liquid and crystallized honey; the other, a large exhibit occupying an entire side of a large room in the Industrial Building, was sponsored by the Ontario Beekeepers' Association. This exhibit showed all kinds of beekeeping equipment, honey in various kinds of containers, both liquid and crystallized, as well as section comb honey, and an observation hive of bees. At one end of the exhibit considerable space was devoted to the value of bees as pollinators of fruit and other farm crops. Some well-worded statements concerning the importance of pollination by the honey bees were set forth graphically in a large framed panel, the lettering being large enough to be read easily. Without a doubt this display will have the desired results in acquainting the general public with the dependence

of agriculture on the honey bee for pollination. Thousands of people who saw this display would surely be impressed with the facts set forth so graphically. It would be interesting to know how many state and county fairs in the United States have had such displays. This appears to be one grand opportunity to acquaint the citizenry with the importance of the beekeeping industry.

Lack of space forbids my telling more about the wonderful things I saw at the Toronto Fair, except to mention the heliocopter which was used during the late afternoon program held on the lake front in connection with rescuing a man in a parachute who had been cut loose from an airplane a mile above the lake. You doubtless know that the helicopter type of plane can stand practically still in the air and move in all directions at the will of the operator. This plane came down over the water, lowered the rope to which the man fastened himself, then lifted him into the helicopter.

Some few years ago I mentioned the fact that this type of plane might be used in connection with outapiary work. I still think this will become a reality. How easy it would be when visiting an outyard, to lower the plane between the rows of hives. Just consider the value of such a plane during the muddy spring months when it is sometimes impossible to drive to the yard off the main road. Of course, modern jeeps do help to solve that problem and it seems that more and more jeeps are being used by commercial beekeepers in outapiary work.

Bees Wouldn't Sting

Some sections of Ontario were badly burned up with a severe drouth. While I was there a good rain of over an inch came one night. It is marvelous how vegetation will respond to moisture. In a day or two the fields were green again. While visiting my brother Huber Burke of Omemee, Ontario, a commercial beekeeper, we stepped into his home apiary one evening after six o'clock while the bees were still working. They appeared to be carrying nectar which, according to my brother, was quite unusual for September.

The three-story scale hive showed a weight of almost 200 pounds, so I decided to take a peek into the top super to see how well the combs were filled. No smoker nor hive tool was handy so I managed to remove the inner cover with some difficulty. Those looking on feared I might get stung, especially when

An A. I. Root Company apiary near Medina which is protected from cold winter winds.

This shows method of protecting hives with black paper, as well as a windbreak on two sides of the apiary. Notice the middle flight holes.

looking into a powerful colony without smoke so late in the evening. However, before opening the hive I caught three or four bees as they landed on the alighting board, held each one up to the sun to note how full of nectar it was, then pushed the posterior part of the anatomy up to where the honey stomach is located, pressing gently until the bee regurgitated a large drop of nectar which I caught on my thumb nail, holding the drop of nectar to the light to note its color and density, then tasting it. Some of you, of course, have done this. The nectar was unusually heavy and must have had a very high sugar content. It was light in color and tasted like clover honey. There were fields of alfalfa nearby and we assumed that the bees were getting nectar from that source.

It seems possible, therefore, that some Ontario beekeepers were favored with a rather late honey flow from alfalfa and possibly red clover if weather conditions continued to be favorable for nectar secretion. At least, colonies should fill up well for winter, and if they do get some extra surplus, this will increase the per-colony average which was below normal this season due to unfavorable weather.

Visit to J. L. Byer

On the way home on September 3, I by-passed Toronto to avoid heavy tra fic. As I glanced at the map showing towns along Route 7 I suddenly realized that I would be passing through Markham which is the home of J. L. Byer, for many years a contributor to Gleanings, and a regular reporter for Ontario in our North, East, West and South department. As most of you know, some time ago Mr. Byer found it necessary to give up writing his monthly column because of illness.

It was indeed a pleasure to meet the Byers. The sons, stalwart chaps, are carrying on. Although bedridden, Mr. Byer has the same spark of enthusiasm and a twinkle in his eye that I have observed during the years while visiting with him at bee meetings in Toronto. Mr. Byer has had a long experience with bees in the province which gives him a bird's-eye view of the industry there that some less experienced beekeepers do not have.

Our readers will be glad to know that Mr. Byer is resting easily, is in no pain, and sleeps well nights. I am sure that he would appreciate an occasional card from those who have read and enjoyed his writings during the years.

A Word to Beginners Regarding Fall Management

It has been said that more bees die during winter as a result of starvation than from any other single cause.

Many beekeepers are now using the food chamber hive which means wintering in a two-story hive, the upper story preferably a deep or standard super filled with honey, in addition to some honey in the lower chamber. Some are wintering in three-story hives which give a superabundance of stores. Three-story colonies can usually be divided quite early in the spring at the beginning of the fruit bloom flow, giving queenless divisions young laying queens. This procedure can be used by those who thoroughly understand the technique to be followed. Beginners should watch their step on dividing in the spring.

A two-story hive will contain an ample amount of honey and pollen for winter and early spring stores provided the food chamber or upper story is well filled.

A populous colony of bees in a two-story hive will usually form a winter cluster with the upper part covering the lower portion of the middle combs of honey in the food chamber and the lower part of the cluster occupying the center empty combs in the lower chamber. In most instances there will be honey in some of the combs at the sides of the lower chamber. This means that the cluster is virtually surrounded with honey. As this honey is slowly consumed during the winter, the cluster moves upward. It should be said that the cluster usually forms near or above the front, or entrance, of the hive, working upward and then backward during the winter. If there is an abundance of honey above the cluster the bees are not likely to starve during the winter. Furthermore, in a double-story hive the cluster can move sidewise if necessary onto fresh stores if it occurs with its approximate center between the two sets of combs.

One of the secrets of success in wintering is to have the upper chamber, frequently called the food chamber, practically filled with stores, in addition to some honey in the lower chamber. Sixty pounds of honey or over in a two-story hive should be an ample amount for winter and early spring stores. It is possible of course to winter on less than 60 pounds. However, bees do consume a large amount of honey early in the spring before they are able to collect early nectar and pollen.

We had a letter from a beekeeper in Wisconsin the other day who stated, among other things, that in his opinion it pays to have a shallow super consisting mainly of pollen put directly over the bottom board of the hive or under the lower chamber, so that the bees will have an abundance of pollen early in the spring when the weather is too cold or rainy for them to collect pollen from natural sources. Some authorities say there should be the equivalent of five or six standard combs of pollen in each colony going into winter quarters. Remember that approximately one pound of pollen is required to produce one pound of bees.

Protection is Essential

It is an advantage to have ample wind protection for hives of bees in the North. A snow fence placed at the north and west side of the apiary will break the force of the wind. Bees wintered out-of-doors in the North, especially in the far North, winter better with some

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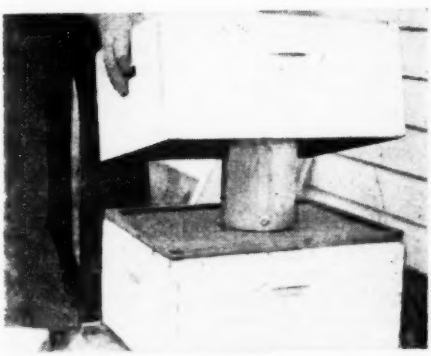


A feeder can having holes punched in the cover. This is filled with syrup and inverted over the hole in the super cover. An extra hive body is put over it.

From the Field of Experience

A Magnifier for Beekeepers

By Roy W. Kelly, Berkeley, California

At a recent meeting of the Alameda, California, Beekeepers' Association, a magnifying device of interest to apiarists was demonstrated. Its general construction will be apparent from the accompanying illustration. Of light aluminum, with an adjustable leatherette head band the magnifier can be worn over the regular distance or reading glasses. For those who do not ordinarily wear glasses for close work, it is an effective aid to vision.

This device has been tested by Prof. J. E. Eckert, Apiculturist for the University of California at Davis. He has found it useful for various kinds of laboratory and inspection work, but especially helpful in grafting larvae in artificial queen cells.

For the older beekeeper whose eyes are growing a bit dim, or for the younger worker whose vision is not perfect, this device may prove a godsend. For many, even in good light, eggs are hard to see. Difficulty may be encountered in many other tasks such as precision shop work, inspection for disease, or marking and wing clipping.

The optical system is designed for easy enlarged stereoscopic vision without eye strain. Lenses are of good quality and show no color or distortion.

Wearing a bee veil does not seriously interfere with vision while using the magnifier. When worn just above the glasses, one does not look through the magnifier when he stands erect and looks straight ahead. By bending slightly forward and looking down, the vision is directed through the device.

The magnifier can be used over glasses as well as without glasses.

This magnifier is also useful as an eye protector for shop work, such as using the emery wheel. It is sold under the trade name "Twin-Loupe" by Montgomery and Company, 54 Park Place, New York 7. Several models are offered, but the one most likely to appeal to beekeepers is No. 9, which enlarges 2½ times at 9 inches from the eye. Another similar model, No. 13, enlarges 1¾ times at 13 inches, which for some uses may prove a more convenient working distance.

Honey Goes to Antarctica

By Wilbur L. duBois

Trail biscuits carried by Commander Finn Rodde of the United States Navy on his recent expedition to the Antarctic Continent were made with honey instead of sugar. The recipe called for cracked whole wheat, honey, milk, oatmeal, egg powder, and salt. This made a biscuit very much like an oatmeal cookie. In that country of ice and snow where the temperature went down to 51 degrees below zero, honey kept the biscuits soft and fresh. Fudge, on the other hand, became as hard as a brick. The candy maker was not smart. He should have used honey for part of the sugar. The fudge would have kept fresh longer—better tasting, too.

Chicago, Ills.

One Method of Packing for Connecticut

By Louis S. Scherff, Bristol, Connecticut

Wintering bees in New England and cool climates is usually a problem that confronts new beekeepers as well as some of the old timers.

Moving hives into cellars involves considerable labor and is not the healthiest for the bees. Packing with straw and covering with waterproof paper also consumes considerable time and yearly expense. Early spring examination of the hives is almost impossible with this method of wintering. If hives are packed with straw, the beekeeper seldom takes time to repack after examination.

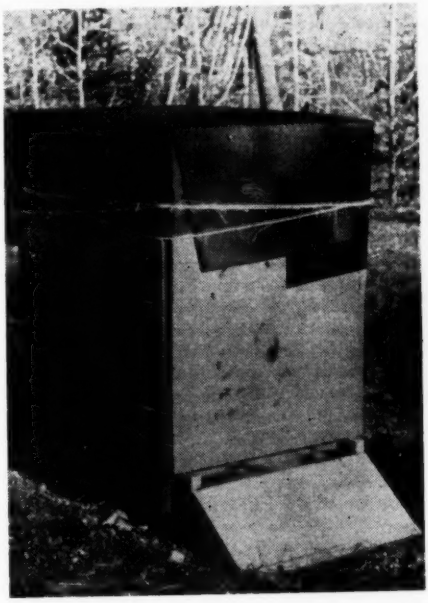
An ideal wintering method is one which does not require the moving of hives. They should be packed so that inspection could be possible during the early spring and then easily repacked to protect the early brood from late cool winds and cold evenings.

The moisture in the hives must be permitted to escape, which is not always possible with straw-packed hives. Ice and snow may find its way into a damaged straw-packed hive and remain for the winter, making a very undesirable condition for the bees and brood. Mice also may well occupy the straw-packed hive. Cost of packing is a consideration and must be kept as low as possible. The ideal packing should not be a yearly expense. Few beekeepers have use for the straw they remove from the hives.

All these problems appeared very difficult until we decided to apply Bildrite board to the sides of the hives. This is a composition board used for house construction and insulation. The feeder and brood chamber was measured and pieces cut to fit. Holes were cut in the front piece over the holes in the hive. Twine was used to fasten the board to the sides of the hive. A piece of heavy weather paper was used to cover the top.

Spring inspection was very simple and the board was replaced to protect the early brood that means so much to the apple crop. As the new supers were added the winter protection remained. The winter protection now became spring protection. The weather paper top was removed at this time of the year. The Bildrite board remained on the hives until the brood would not be chilled by cold winds and chilly evenings during April and early May.

The initial cost of this protective material may seem expensive, but considering the advantages over other methods the cost per year is very little since Bildrite board may be used for years if stored during the summer.



A hive showing how Bildrite board is fitted around it. This insulation is easily applied in the fall and removed in the spring for a number of years. There appear to be some advantages to this type of hive protection.

I do not believe this method of wintering is the best for all climates and weather conditions. Conditions may vary greatly from our section and the individual beekeeper should know which method gives him the greatest returns. At least, this method gives us winter and spring protection for a reasonable cost per year.

XUM

Editorials

Honey Price Support As reported in the September issue of Gleanings, price support of honey had succeeded in the House but has not been passed by the Senate. The Committee on Agriculture and Forestry did not include honey with some of the other items they recommended for price support but this does not necessarily mean that the Senate is opposed to supporting the price of honey. It does indicate, however, that a bill would have to be introduced similar to the bill that recently passed the House in order to get honey on the list of items coming under price support. Considerable effort will be required by the industry to get over to the Senate the importance of bees in this country. The industry certainly has all of the necessary information to put up a convincing argument and it is a matter of getting the Senate properly aroused to obtain price support for honey.

As we go to press we are informed that Senators Arthur Watkins of Utah, Scott W. Lucas of Illinois, Milton R. Young of North Dakota, Guy M. Gillett of Iowa, and Edwin C. Johnson of Colorado are introducing an amendment in the Senate making price support mandatory. With help from the honey industry price support for honey can become a reality.

Long-range prosperity, however, can come only from increased marketing effort for honey, some form of payment preferably by the farmer for the pollination service performed by the bee, particularly in areas where honey plants are not adequate to insure a livelihood alone from honey, and the development of new industrial uses for honey.

These will require the same sort of organized effort the industry has shown in past months.

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New Government Project on Use of Honey in Bakery Products The good Offices of the Honey Utilization Committee, American Beekeeping Federation, were invoked to bring together representatives of some of the largest commercial bakeries, members of the Committee, and U. S. Dept. of Agriculture employees concerned with carrying out a new Research and Marketing Act project. This project has the objective of developing the use of honey in bakery products on the basis of findings following tests conducted under contract in a practical baking-test laboratory.

Robert Willson of R. B. Willson, Inc., New York City, Chairman of the Utilization Committee was host to the conference which was held September 8 at the Cornell Club of New York. Besides Bob Willson there were present Philip Talbott, Specialist in bakery practice, Production and Marketing Administration, USDA, Washington, D. C.; Dr. W. H. Cathcart, Director National Bakery Division, The Great Atlantic and Pacific Tea Co.; Dr. S. M. Jackson, Sunshine Biscuits, Inc.; Raymond T. Bohn, Director, General Baking Co.; G. C. Bobinson, Continental Baking Co., Oscar Scovholt, Quality Bakers of America; Claude Davis and P. L. Warren of the National Biscuit Co., and Marshall J. Goss, Dr. Jonathan W. White, Jr., and George P. Walton of the Bureau of Agricultural and Industrial Chemistry, USDA. Chas. A. Glabau, Technical Director, Bakers' Weekly, could not attend because of absence from the city. White and Walton are on the staff of the Eastern Research Laboratory, Wyndmoor, Pa., which will be responsible for direct supervision of the work under the project, and Dr. White is also a member of the Honey Utilization Committee.

The conference proved highly valuable in bringing together constructively the divergent views (regarding the place of honey in commercial baking) between the group from the large bakeries and those interested in extending the utilization of honey.

It was apparent that the large concerns, and doubtless many small bakeries, have much less interest in the development of new formulas for making bakery products of superior quality with honey as a sweetener, than they have in authoritative answers to such questions as:

What are the limits of permissible variation in the moisture content; acidity; flavor; color; and ratio of levulose to dextrose (or levulose content) of honey, within which limits the honey will not adversely affect the baked goods in which it is used or, in the case of the levulose content will definitely improve the product in appearance and moisture retention?

What specifications are essential to characterize "standardized" honeys for the bakery trade—so that a baker can be sure of getting honey satisfactory for his purpose time after time?

What specifically are the advantages in using honey, in comparison with an equal amount of cheaper sugar in the form of invert sugar or sucrose, in making breads or even sweet baked goods?

These are points of practical importance to bakers, especially to the large mass-producing baking companies, and work on their elucidation will no doubt be included in the project.

However, it was felt that some provision should be made for work to develop formulas—more particularly for sweet products—of superior quality and in which honey would supply the bulk of the sugar. Items such as honey cakes, fruit cakes, milk and honey breads, fillings, toppings, and honey base cake should offer opportunities for improvements through increased use of honey.

It promises well for the project that such representative bakery technologists have consented to review and revise, as individuals, on the work to be performed under the project.

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A Boost for Our Industry Those who read the Saturday Evening Post will have noted the article in the September 3rd issue entitled "They All Go Crazy in Tupelo Time". The splendidly illustrated article is very well written.

Only those who have produced honey in the tupelo regions know the beekeeping problems involved. This honey flow starts rather early in the season, usually during April. The honey comes in very rapidly—in fact, bees work from early morning until late in the evening. It is essential that colonies and beekeepers be ready for the flow in order to obtain the maximum crop.

There is something intriguing about the production of tupelo honey, as we learned as a result of experiences in that region over 30 years ago. The Root Company moved a carload of bees onto the Apalachicola River late one fall, increased to three carloads before May 1 of the following spring, and produced quite an amount of surplus honey. This honey is sought after by those who have diabetes.

The tupelo region is restricted to a comparatively small area in northwestern Florida. There are, of course, some tupelo trees elsewhere but as a rule not in sufficient quantity to obtain what might be called pure tupelo honey.

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Sugar The supply of sugar is growing somewhat tight, we are informed. Unless the Secretary of Agriculture increases the 1949 U. S. marketing quota of 7,250,000 short tons of sugar the trade expects the price of refined sugar to go up.

While the price of sugar and honey have not necessarily been closely associated in the past, nevertheless an increase in the price of sugar might have a helpful influence on the honey market.

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Bees for Pollination We have heard from a number of commercial beekeepers who have succeeded in interesting legume seed growers in the importance of bees for pollination this past season. Most of the growers have learned from actual experience that the presence of honey bees near fields of clover does increase seed yields. In fact, some of the growers ask to have the bees left on their farms permanently.

The beekeepers have either asked rentals or have shared in the crops of seed.

It would appear that our industry is on the fringe of a new era of beekeeping and that we are now in the transition period. In the future beekeepers may make more out of their bees for pollination than they now make from honey.

If honey crops increase in the near future because of better bee

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pasture as a result of more legumes grown, the industry is due for a development it rightly deserves.

As has been said, the beekeeping industry is as yet in its infancy.

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Beekeepers Win Council Fight The August 1949 Gleanings, page 504, carried an editorial regarding the convening of the City Council of Buffalo, New York, to consider a proposed ordinance which would outlaw the keeping of bees within the city limits.

The Common Council Legislation Committee received and quietly filed all items dealing with the subject—which was the occasion for an unusual—in fact, somewhat uproarious—public hearing in August. The Committee's action, according to a newspaper clipping submitted by a beekeeper, needs only routine approval by the full Council and thus the proposed ordinance will be killed.

This decision will be good news to thousands of beekeepers in towns and cities throughout the country. However, backlot beekeepers should exercise every precaution against getting bees stirred up unduly, which may cause trouble in heavily populated areas, as already brought out in the August editorial.

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Ample Food for Bees Essential Bees are not likely to do well on short food rations. An abundance of food helps to insure successful wintering. A well-filled food chamber in addition to some honey in the lower chamber is needed, especially in cold regions. More bees die in winter from starvation than from any other single cause.

Beekeepers should not guess or assume that their colonies going into winter have enough to eat. Beekeepers should know definitely that all colonies are well supplied with both honey and pollen. Some beekeepers weigh each hive, allowing so much weight for hive parts, combs, and bees. Others check through each colony to estimate the amount of food present.

It has been estimated that a two-story 10-frame colony in standard bodies should weigh at least 120 pounds. It would do no harm to have it weigh more. Extra stores are never wasted. They help to insure populous colonies and it is the large colonies that store the maximum crop when conditions are favorable.

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Cleaner Honey Houses Needed As we visit beekeepers here and there over the country we occasionally see a honey house that is not exactly a credit to the industry. If some of our housewives and women who have an eagle eye for dirt could get a look inside of some of those buildings they might never again use honey. A mere man who may not notice or perhaps can tolerate a little dust is not by nature so scrupulously clean as are the majority of the fair sex.

It might be well in the programs carried out by county beekeepers' associations to appoint a committee of women to inspect all of the honey houses within each county. If this were done, more soap and water would be used, not to mention elbow grease, and the honey houses generally would present a more sanitary appearance.

It is fortunate for the public that organisms which are harmful to human beings cannot and will not live long in honey. This is not true of milk and some other foods, and that is why strict government regulations and inspection of conditions and buildings where foods are processed and packaged are essential.

Possibly one reason why a great many people have never seen honey extracted from the combs and have no idea how it is taken from the combs and put into jars or pails is that some beekeepers are actually ashamed to have people visit their honey houses.

At present there are a few states which require a certain degree of sanitation in honey houses, and permission to package and sell honey depends upon the beekeepers' willingness and ability to fulfil the requirements related to sanitation in their honey houses.

Because of its stickiness, honey is a somewhat difficult food to handle, but this is no excuse for tolerating untidy and unsanitary honey houses. One way to increase honey consumption is to maintain clean honey houses and to market honey that is well ripened and absolutely free from foreign matter.

From North, East, South and West

SOUTHERN CALIFORNIA, Sept. 2

Weather: The weather has been very hot and dry recently, with no rain excepting a few thundershowers in the mountains. However, up until the last few weeks we have had a very pleasant summer. One great advantage we Southern Californians have is that it is only a couple of hours trip to either the beach or the mountains. We can at least get cooled off occasionally.

Market: The market or price of honey seems to be uppermost in the minds of the beekeepers. The wholesale price isn't as good as it should be considering the retail price in the stores. We hear reports of from six to ten cents being offered and the market is rather slow. Some districts, such as the Imperial Valley, have had a very good flow of nectar and report as much as 80 pounds per colony. A good crop always helps to compensate for low prices.

Miscellaneous: With the rush of moving from one location to another, a few supers of combs may be set aside just until you get caught up. They may have been there longer than you thought when you looked again at them and, behold, the moth had lost no time in taking full possession. These might have been combs of honey or surplus combs — the moths are not choosey and seem to delight in getting in any kind of honey combs. It is astonishing the damage they can do in a short time if allowed a clear field.

In the Imperial Valley no airplane dusting is allowed on crops which are used for stock feed. This has saved the beekeepers from a big loss of bees.

There seems to be more and more news in print about beekeepers being paid for the use of their bees in pollinating crops. This certainly sounds good to them in more ways than one. Now the farmer welcomes what used to be considered an unwelcome guest.

It has been a common sight since early spring to see women carrying a dish or basket of fruit or berries they have gathered from their own gardens to a neighbor's house. Many of the homes had some vacant space on their lots and the people planted a few fruit trees or berry bushes. The bees and pollen must have been plentiful this year for every tree and bush seems to be loaded with fruit.

A friend reported having a swarm of bees hanging on the branches of a tree for about two months. We went to see them the following day but they had just left. They had been clustered out toward the end of the limb where the branches were about two inches in diameter. They had drawn several pieces of comb as large as your hand but evidently had no queen. The comb was about 20 feet from the ground. We do not remember a swarm staying that long without a queen. After so long a stay in the tree, it is possible that they left because they could not find enough food to live on. Who would know?

A copy of the Western Honey Bee for July 1918 contains a picture of M. H. Mendleson's Farmerettes manipulating a colony of bees in an apiary. That was during World War I and well do we remember how the young women came forth and helped in all agricultural lines. —L. L. Andrews, Corona, Calif.

NORTHERN CALIFORNIA, Sept 1

Weather: Right at this moment it is sweltering hot but the month of August was the coolest in Northern California for the past 38 years. Unusual, even for California. Then take another record — a light rain fell near the close of the month, too light to do any good and not heavy enough to do much harm to the ripening crops. The cold nights persisted throughout the month and the days were comfortable for man but not warm enough to stimulate nectar secre-

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tion in most of the honey plants. While plant growth was favorable, conditions were unfavorable for maximum nectar production.

The Honey Crop: It is too early to determine what the total production will be but reports from beekeepers in different sections of the state indicate that the yield will be below average to light. Alfalfa, a normally dependable source in most sections of the state, yielded in a spotty manner, and in most of Northern California an average of 30 to 40 pounds per colony probably will be the story. In some sections where seed alfalfa yielded heavily last year and produced a beautiful white honey, only 30 pounds of a light amber honey were harvested. Cotton was said to be yielding well in the central portion of the state although some beekeepers express concern over the probable effect of chemical control of insects on their bees. Yellow star thistle has yielded well in some places but tarweed, which comes in near the close of the thistle, is not attractive to bees this year. Ladino clover has not yielded in some areas while in others it is reported to have produced a good crop. So one cannot blame weather conditions entirely for the light honey crop. Soil moisture apparently is an important factor with seed alfalfa and apparently much has to be learned about its optimum moisture needs in relation to the different types of soils in which it is grown.

California's New Cotton Strain: A new strain of cotton is being grown in California which has a 20 percent stronger fiber and produces yarn which is 24 percent stronger than any previously grown. Beekeepers are interested in it because it apparently is a good producer of nectar and honeydew. In some cases, however, bees have paid little attention to drops of honeydew on the bolls. This honeydew is said to appear more abundantly if the plants are not irrigated properly. This strain of cotton, known as Acala 4-42, matures early and irrigation should cease correspondingly early at the end of the season. If this is not done, new second growth appears on the tops of the plant and these become infested with aphids and white fly. Heavy deposits of honeydew on the open cotton bolls cause discoloration of the fiber and trouble in picking and ginning.

The Honey Market: Prices are about the same as in recent weeks, with the best grades selling around 10 cents to the beekeeper. Some light amber to amber grades have sold as low as six to seven cents, according to the few reports received. Honey is moving slowly on the retail market and, as usual, can be expected to pick up some strength with the coming of cooler weather. My attention has been called to a relatively new and definitely delicious honey-nut spread which is being marketed by the B-Good Honey Products Co. of Newberg, Oregon. There are two types at present, one combining ground filbert nuts with honey and the other in which English walnuts are used. The honey industry can use new and different compounds to help increase the demand for honey. Bradshaw's Honey Peanut Brittle was delicious but I understand it has been taken off the market for the present. Some new types of honey jars are appearing on the market which are more attractive than others. The school children will be trooping back to school and will enjoy the government purchase of honey for the school lunch program. It is expected that they will carry their taste for honey back into their homes and in this way increase the sales this fall. However, many of the schools need to be advised to place the honey on the tables in servers where the children can use it. Local beekeepers could render a distinct service by supplying their local school lunchrooms with hints on how to use honey. The best and simplest one, though, is just to keep it within reach of the children when they are hungry. The ease with which honey can be creamed and the advantages of creamed honey over liquid honey should be passed on to those in charge of the school lunch programs.

Miscellaneous: Honey prices are definitely off from what they were a couple of years ago and many bees are being offered for sale, not only in California but elsewhere. The demand for bees to pollinate the various fruit and seed crops is on the increase and will continue to be as long as growers are advised of their beneficial services in increasing production. But the bee-

keepers must prove to the growers that bees do increase the yield of various crops and the easiest way to do this is to place a cage over a number of plants before they come into bloom and then let the grower harvest the fruit or seed produced from plants under the cage as well as others in the same field which bees have visited. This is more effective than testimonials and is an inexpensive way of demonstrating the value of bees to agriculture. Growers will then see the reason for paying rental for the services of colonies. They will also see the need for a more careful use of insecticides in order not to destroy the bees which increase their crop yields.—J. E. Eckert, University of California at Davis.

MISSISSIPPI, September 8

Weather: In general this has been the rainiest season in Mississippi for many years. Honey plants have stayed in good condition much longer than normally, but full benefit has not been realized by the bees on account of the frequent and excessive rains in many localities. Sweet clover often dries up in July but remained in bloom much later this year.

Crop: Except where rain reduced the yield, this has been a very good season. Here at State College our production has been low. In the southeastern section a good gallberry crop was harvested as there were some counties where the rainfall was not excessive.

Markets: Nearly all honey in Mississippi has already been sold locally although one producer in the southern part of the state reports having a car, chiefly from tupelo gum, still on hand. Several beekeepers attending the state meeting on August 3 reported their entire crop already sold at that time.

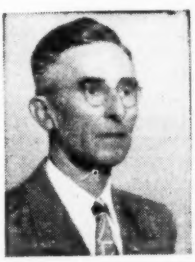
Package shippers in general had a disappointing season and some of them converted over to honey production when it became apparent that they would have a surplus of bees.

State Meeting: The best meeting of the Mississippi Beekeepers' Association was held at State College August 3 and 4, in connection with the annual farm and Home Week of the College. Speakers from several states were present and beekeepers from all sections of Mississippi attended. The afternoon session on August 3 was held in the College apiary and the morning of August 4 was given to instruction for beginners, using the beekeeping laboratory of the College. The Association voted unanimously to hold its 1950 meeting at State College again in connection with Farm and Home Week. W. W. Wicht of Hattiesburg was reelected President, M. S. Fortune of Mayhew, Vice-president, and Clay Lyle of State College, Secretary-treasurer.

Poisoning: The worst boll weevil outbreak on record has caused the heaviest cotton poisoning in many years. Widespread dusting with the new organic poisons apparently did not result in wiping out colonies completely as has been the case in the past when calcium arsenate was used. However, the organics became scarce late in the season and much calcium arsenate was used. Reports have not yet been received on the final results.

Honey Exhibits: The State Fair to be held at Jackson October 10 to 17 is offering the following premiums for honey exhibits: First prize, $50; second prize, $35; third prize, $25; and three $10 prizes.—Clay Lyle, State College, Miss.

TEXAS, August 31



Weather: The early part of August was relatively cool, however, typical summer weather with the highest temperature of the season prevailed during the remainder of the month. Only light scattered showers occurred with no rainfall of any consequence reported from any section of the state.

Bees, Plants, and Honey Crop: With present weather conditions little nectar or pollen is now available from the field. The bees are relatively inactive and brood rearing is considerably reduced. Colonies, however, are strong and in

good condition to take advantage of the fall bloom which is expected with the coming of fall rain and cooler temperature. Broomweed, bitterweed, asters, and a variety of fall-flowering herbs and shrubs are fairly abundant and in good condition. The yield from cotton was satisfactory but the flow ended earlier than usual. In the Brazos River bottom a good flow from balloon vine followed cotton to the extent that the summer honey crop was materially increased. In many localities the well-known Snow on the Mountain bloomed profusely and yielded some nectar. Some beekeepers reported honey from this plant and also from bitterweed stored with early honey so that the latter was unfit for extracting. Extracting operations of the main honey crop have been largely completed with the current year's crop above that of last year and in most sections above the normal average.

Market: The honey market continues generally dull. Grocers are well stocked with honey but consumer demand is light. Retail prices remain unchanged. Quotations as low as 5 cents on extracted good table grade are offered producers but no large lot sales are reported. Due to the increased spread between producer and retail prices many beekeepers are marketing their crop locally direct to consumers. Good quality comb honey is generally scarce and in good demand by large and small bottlers alike. The retail price on comb is about 5 cents per pound above that of extracted.

Miscellaneous: Recently a San Antonio beekeeper donated 600 pounds of honey to the A. & M. College Athletic Department to be served athletes under training for the coming season's contests. This beekeeper is to be commended for his thoughtfulness in providing honey as a quickly absorbed energy-giving food for athletes of his alma mater. It is hoped that the merits of honey in the diet of athletes will be demonstrated again. While the virtues of honey in the human diet for every walk of life is well known too often honey is overlooked in making out the grocery list. Beekeepers are again reminded of the meeting of the Texas Beekeepers' Association at College Station on October 3 and 4.—A. H. Alex, College Station, Texas.

MINNESOTA, September 12

Weather: We had an excellent spring for weather conditions and the bees lost little time. There are regions in the state that suffered a drouth during the summer, while parts of the north had too much rain. Contrary to expectations when white clover was burned up, the hot summer started alfalfa to yielding better than usual. September rains will be of help to pastures.

Bees: A few beekeepers report more swarming than usual last summer. Through swarming and supersedure most colonies are headed by young queens. With low honey prices and less average colony production beekeepers have figured out that they must keep more colonies if at all possible. While some beekeepers are discouraged about this situation and await developments, others are increasing the number of their colonies as an apparent "must", or quit. Clusters are in good shape for wintering but here and there queen trouble has upset the normal condition and the cluster is small.

Honey: Generally, a normal crop is being extracted be the local condition wet or dry. However, yields vary within a few miles, largely because of the factor of pasturage, which frequently is determined by the chance of showers. Outyards having the same management sometimes show marked differences.

The price situation has much the same pattern as last year. Retail prices are about the same, with bottlers trying to buy for less. However, beekeepers are reluctant to sell for less when production costs remain high and there is a hope for Government floor support. A few beekeepers produced more comb honey this year and were rewarded with better profits.

Miscellany: The **"status quo**, this mess we are in" has finally caused Minnesota beekeepers to realize they must take more of a hand in running their own affairs. Minnesota consistently ranks among the four largest producing states in the Nation, yet we have been willing to

let those whose livelihood does not depend on beekeeping control our state association and shape the laws that govern us. At the Detroit Lakes meeting there was the beginning of a reawakening to the irony of our situation—has Minnesota beekeeping become of age?—Bruce Morehouse, Montevideo, Minn.

VERMONT, September 14

Weather: Vermont as is usual, didn't have the variety of weather we usually get. Since early spring, weather has been too good, too much sunshine and not enough rain. Between April and September the Champlain Valley had hardly an inch of rain. Since then, fortunately, September has brought us enough rain so that meadows and pastures are turning green again and clovers once more are evident. In fact, pastures now look just like spring.

Crop: With a drouth so early in the season, it is inevitable that we have a short crop again—less than 30 pounds per colony average. Starting June 10th, honey came in well until June 20th, and that ended our honey crop for the season. Outside of the Champlain Valley, the honey crop has been good, since in the mountain areas there is usually more rain. This year there has been evidence of bees sealing over thin honey so that it fermented right under the cappings. Since we had a drouth, it can't be blamed on damp weather, and only certain colonies have it. While we fortunately did not have any, we have seen it with other beekeepers. This certainly seems to be some evidence that certain strains of bees do not know how to make good honey. They seal it before it ripens. It hardly seems possible, but until someone comes up with a better explanation, I don't know any other.

Market: It apparently is not necessary to elaborate on this subject, since the market is slow. The day has come when we have to sell honey again. We have been trying to keep our prices the same as last year and with the short crop we may be able to do it.

It is unfortunate we have to resort to price support for honey. With the price dropping as it has, especially with dark honey, there appears to be no alternative. Yet I don't see how that will solve the problem. Even though the price may be kept up, it certainly isn't going to make the people buy it. After all, our honey isn't sold until the people buy it and consume it. If the Government buys it, it still won't be sold—something will have to be done with it. We have also to realize we are partly to blame. Some beekeepers and packers have been selling some awful stuff during the boom and, together with the high prices, something had to collapse.—Charles Mraz, Middlebury, Vermont.

PENNSYLVANIA, August 26

Crop Conditions: The honey flow began about three weeks early this spring. It arrived before beekeepers were aware of what was happening. As a result, many colonies were not given supers in time and swarming became excessive. The colonies with ample super space did not swarm excessively.

The bees gathered a surplus from fruit and dendelion to turn all light honey a straw yellow color but not enough to change the flavor of the clover honey very much. The dandelion also crystallized quickly so that a considerable amount stayed in the combs when the honey was extracted.

A locust flow followed the dandelion flow and this blended into the clover flow which was the first of June. This surplus was three weeks earlier than we have had for at least four years.

The clover honey flow was heavier that it has been for several years. The quality also is above average. The dry weather in midsummer, however, cut the flow short so that the surplus is not large and is spotty throughout the state. Some areas extracted 80 percent of a crop while others had little if any surplus.

The summer honey flow from sumac and basswood was only 20 per-

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cent of normal. The second crop clovers yielded a very light surplus most of the summer. Buckwheat has produced a surplus where the soil was not too dry.

Market: Honey is moving slowly but there is a steady tone to the demand for light honey which is encouraging. Dark honey is not moving.

Miscellaneous: The one week short course at the Pennsylvania State College was attended by beekeepers from four states. It was followed by the State Picnic on Saturday, August 20. About 200 beekeepers were in attendance. Considerable time was spent by the beekeepers in looking over the extracting equipment and equipment for research work.—E. J. Anderson, State College, Pa.

NEW JERSEY, September 14

Weather: The past winter was the most favorable for bees in many years. This resulted in no loss except from queenlessness or lack of stores. Also bees built up well in spring which was followed by excessive swarming.

Then came the drouth and excessively high temperatures which fairly cooked many nectar-producing blossoms except in the southern part of the state where the drouth was not so severe. The result is that at this date many colonies do not have five pounds of stores and fall nectar-producing plants are not plentiful. Some beekeepers are already feeding and unless much feeding is done winter loss will be heavy.

Miscellaneous: The demand for bees for pollination is increasing and those who rent bees for this purpose receive some income notwithstanding small honey crops.

A few years ago New Jersey beekeepers could get a crop from clovers. Now, however, with changing farm practices, clover is cut for hay as soon as the blossoms appear and the second crop is grazed closely, resulting in no honey from that source except in rare cases.

The market for honey is about normal for this season of the year, since the market is more or less seasonal. Many beekeepers are trying to hold prices to the level of the past few years. However, with sugar plentiful and comparatively low in price, competition between it and honey is keen. — Elmer G. Carr, Pennington, N. J.

ONTARIO, September 10

Weather: Since my last notes we have had seasonable weather with a fair amount of rainfall. Considerably more rain will be needed before freeze-up to put a reserve of water into the soil and replenish wells and springs.

Bees are improving in colony strength as a result of the fall flow. There have been some late swarms and supersedure, but on the whole I think colonies generally are in good condition for this time of year and will not require extensive feeding for winter.

Miscellaneous: What about DDT? What is its status in our modern economy? A recent article in the Toronto Daily Star quoted a Toronto beekeeper as saying that he had lost 70 colonies of bees as a result of the use of DDT sprayed on golf courses, fields, and shrubbery.

Some extracts from the article might be relevant, and I quote the following:

"DDT, acclaimed a few years ago as one of the greatest scientific discoveries, is now being called a menace to human health and wildlife by Canadian and U. S. scientists. They say household pets, chickens, rabbits, birds, fish, certain crops, and beneficial insects have been destroyed when areas have been sprayed with DDT, and nature's delicate system of pollination for reproduction of plants and flowers has been disrupted."

"Edwin Way Teale, prominent U. S. scientist and a leader in DDT research, says, 'DDT should never be turned loose on the countryside; it is too dangerous.' "

"Isolated experiments conducted by scientists and chemists throughout the U. S. and Canada have put a red flag of danger over the disinfectant."

"H. O. Calvery of the U. S. Gov-

ernment Food and Drug Administration warned the public that 'under proper conditions DDT can be a definite hazard to health.' "

"According to research chemists at University of Toronto, even a five percent solution is too strong and could be dangerous to pets and wildlife. A zoologist at the U. of T. warned that greatest precaution should be used when handling DDT. He said, 'When we use DDT here at the University I always wear a mask and gloves, and never wear my own clothes. It is too dangerous.' "

"In 1945 Algonquin Park in Ontario was sprayed. The result as far as dead pests were concerned was highly successful. But subsequent checks have shown that the DDT killed nearly all the invertibrates as well."

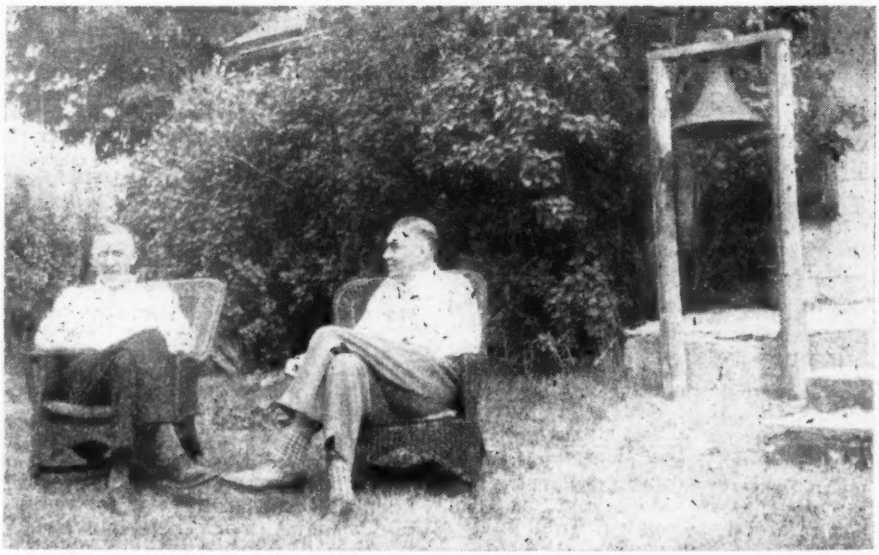
"At about the same time another experiment was being conducted at the University of California. An orchard of walnut trees was being destroyed by the codling moth. The trees were sprayed with DDT and the moth was exterminated. However, the beneficial ladybird beetle was also killed. The result? A horde of walnut aphids normally controlled by the ladybird beetle swarmed over the trees and stripped them of every scrap of foliage."

"The Fish and Wildlife Service of the U. S. declared after experiments near Scranton, Pa., and on farms and lake areas in New Jersey, that 'DDT has been found to be fatal to birds, fish, and beneficial insects, and probably fatal to soil organisms essential to crop growing.' "

The beekeeper mentioned at the beginning of this article stated, "Ever since the DDT spraying I have watched bees dying by the hundreds around the hives."

However, I was speaking recently with Prof. G. F. Townsend of the Dept. of Apiculture at Ontario Agricultural College, and he is skeptical about DDT being the culprit in this case, as apparently under field conditions DDT has little effect on honey bees. It seems that there is still a wide field for investigation. —Allan T. Brown, Peterborough, Ontario.

Two Well-Known Canadians



Left is Tom Shields of the Toronto Honey Producers' Cooperative at Toronto. On the right is Harry W. Jones of F. W. Jones & Son, Ltd. Bedford, Quebec. The picture was taken at Shields' ranch at Peterborough, which incidentally happens to be his father's old home. The bell shown in the foreground was removed from the tower of the school building that Tom Shields attended as a boy, and when the building was demolished to make room for a newer one he secured the bell for his old home.

Sales Tales

By T. J. Paisley

Into any discussion of marketing and marketing procedure comes talk of the cooperatives. We hear a great deal both pro and con about the purpose and value of cooperative marketing. To better understand the problems connected with this form of selling, I feel that it is wise to look over the history and the aims of cooperative marketing. This is not an attempt to either condemn or praise the works done thus far by the cooperatives in the beekeeping industry. Rather it is an effort to better understand this form of marketing. The material used here has been taken chiefly from the Year Book of Agriculture, 1940.

Cooperative marketing is by no means new in its methods of handling farm products. In the early 1870's, farmers grouped together, convinced that they could provide certain services for themselves cheaper on a cooperative basis. The area of Minnesota, Wisconsin, and Iowa is where cooperatives gained the greatest foothold and you will still find the greatest number of cooperatives in this part of the country.

There are seven major types of farm products which are marketed cooperatively: dairy, poultry, fruits and vegetables, grain, live stock, wool, and cotton. Add this to the cooperatives which handle honey, maple syrup, maple sugar, timber, nursery stock, pulpwood, tung oil, and so forth, and you will see there are a great many farm products which are marketed cooperatively. As early as 1936 well over two billion dollars' worth of annual business was done by cooperatives.

Cooperatives are often referred to as non-profit organizations. This is not true in the sense that the cooperative association does have capital and they do purchase-and-sale transactions at a profit. It does mean, however, that the earnings of the association, or savings, as they are referred to, are returned to the patron of the organization as dividends, either in cash or capital equities. These dividends are called patronage dividends.

It is impossible, however, to judge the efforts of cooperative marketing on the basis of the dividends paid to the patrons of the cooperative for primarily a cooperative association is expected to help stabilize the market for the producers who sell through that association. This marketing aid can not be judged in dollars and cents. Also much of the savings or profit is retained in the association to help build for the future.

To be truly cooperative a marketing association must be in the hands of its members. Equality among the members in control of the cooperative is one of the oldest principles of this marketing form. The association is managed by a board of directors selected by the members. The one-man-one-vote principle is generally accepted in this type of organization. Every member, therefore, has a say in the operation of the cooperative.

Cooperatives operate in 48 states. Federal and state governments have encouraged cooperative enterprises through special incorporation laws, exemption from certain taxes, loans from governmental and other agencies, and advice through research and educational institutions. The government hopes that the cooperatives will become recognized as educational institutions — that is, transmitting market information to the producers. They also help the planning and execution of government programs in relation to the products they market.

Objectives: The broad objectives of cooperatives are: lower costs for the members, higher quality goods marketed, and better service to the members of the cooperative and to the consumers. At this time these aims of cooperative marketing are being greatly assisted by help directly from the Government. Through their three broad objectives cooperatives hope to increase the bargaining power of the member producers whom they represent. Generally, cooperatives deal in very highly competitive markets. They have hoped to bring the producers a higher price for their goods by eliminating the high margin between the farmer and the consumer. Thus, they force competitors to work on a narrower margin.

Several of the specific objectives of cooperative movements in general apply specifically to the honey industry. These include: (1) expansion of markets through advertising; (2) the timing of sales to the periods of strong demand; (3) the distribution of available supplies among markets to put equal pressure on all markets and avoid flooding one area; (4) the promotion of reasonable margins for dealers; and (5) adoption of grade and packages to meet the demands of various income groups.

Each of you will have to decide for yourself whether cooperatives have found their place and fulfilled their objectives in the marketing of honey. At any rate, the above material may give a picture of this powerful marketing operation.

A sidewalk stand run by a youngster who has already learned the importance of attracting the attention of customers.

Build Your Sales Now

This is the season of the year when the small beekeeper can build a substantial trade for himself and his product through his selling effort. The greatest amount of honey is naturally sold after the harvest season. There is more honey available for sale and more opportunities to put the product before the public. Roadside stand sales flourish as do store sales of honey, since children are back in school. What can you do to develop a demand for your product that will last throughout the year.

The backyard beekeeper who may have only several hundred pounds of honey to sell is especially interested in obtaining a few steady customers. It would be foolish to contact several stores and try to build up return business with such a small amount of honey for sale. If you have only a few hundred pounds of honey to sell, it is much better to develop 15 or 20 family accounts who will use your honey the year around. This eliminates the expense of selling in a highly competitive store market.

How can you develop these family accounts in your own neighborhood? The best way to sell honey to your neighbors is to let them taste and see the product you have. Small samples of your product can be given to neighbors at a very reasonable cost. Four-ounce jars will offer enough so that the neighbors can see that the man down the street really has somthing worth buying.

Postcards or written advertising can be distributed in your neighborhood in an attempt to obtain family accounts for your honey harvest. It

(Continued on page 661)

Virginia Summer Short Course

Sponsored by Agricultural Extension Service of V.P.I., Blacksburg, Virginia

On the morning of September 12, **J. O. Rowell** of the Virginia Agricultural Extension Service called the meeting to order, then called on **L. B. Dietrick,** Director of the Institute, to give a word of welcome. Mr. Dietrick said he hoped that a full-time specialist may soon be obtained, since beekeeping is becoming more and more important to agriculture.

Geoge H. Rea said that all beekeepers, large and small, are important to the industry. Orchardists are now calling for bees and are willing to pay a reasonable rental. Over 10,000 colonies were rented to orchardists this past year. Colonies furnished should be of good strength so that the fruit grower will get maximum pollination. Mr. Rea said that 144,000 acres of Ladino clover were grown in the state this year and that it may be a partial answer to the white honey situation. Mr. Rea has seen some good painted hives containing crooked combs. It is hoped that all hives in the state may in the near future contain movable frames to facilitate manipulation and inspection of colnies.

W. A. Stephen, Bee Specialist of North Carolina, in his talk "Fundamentals Necessary for Successful Beekeeping", said it is necessary to have a love for bees in order to be successful, and that beekeeping as an investment is one-tenth equipment and nine-tenth brains.

One populous colony of 40,000 bees or over will store as much honey as the same number of bees kept in two hives. Mr. Stephens also stressed the importance of bee spacing between and around combs. Five-sixteenths inch appears to be about right. In some instances capped honey is not impervious to moisture and may ferment, especially during rainy cool weather.

Prof. E. J. Anderson of State College, Pennsylvania, in his talk on seasonal management, emphasized the fact that beekeepers who have worked out a satisfactory system of producing honey should stick to that system and avoid trying out other methods on too large a scale. If you must experiment, do it on a reasonably small scale.

Mr. Anderson mentioned the importance of maintaining colony morale in the apiary. This simply means manipulating colonies in such a manner that the honey-gathering impulse is maintained at the highest possible pitch. To do this, beekeepers should keep ahead of the bees.

F. M. Dick, President of the Association, gave a splendid talk in which he urged all beekeepers to do everything possible to sell the industry to the public. We can do collectively what beekeepers can not do individually. Mr. Dick would have county associations active. They should cooperate with County Farm Bureaus. Bees are badly needed throughout Virginia as well as in other states. If it were not for native bees found in trees and sidings of buildings there would be a dire shortage of bees for pollination.

Merritt I. Taylor of Richmond, Virginia, in his talk "What's New in Beekeeping", said that we beekeepers are better at producing than we are at marketing. He does not favor price support but we should support the American Honey Institute and the National Federation. Mr. Taylor favors having hives either painted black or wrapped in black building paper during the winter in order that the black color may absorb the rays of the sun. On the other hand, hives should be white in summer to keep the interior cooler. He believes we are approaching a new era in wintering bees. Some of the principles of beekeeping have not been well understood and we are now beginning to have a better understanding of wintering.

A splendid movie "The Realm of the Honeybee", showing the production and packaging of bees and queens in Georgia apiaries delighted all who saw it. It was, in fact, a real educational film.

Henry W. Weatherford, State Apiarist, gave a talk on beekeeping generally over the state. In his opinion there are altogether too many bees in box hives which makes inspection very difficult. Beekeeping could be made much more profitable if only beekeepers, large and small, would use up-to-

(Continued on page 656)

Just News

Clark County Beekeepers' Association will hold its regular fall meeting on October 11 at 8 p.m. in the Assembly Room of the Court House basement in Springfield, O. All are cordially invited to attend.

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Dr. J. M. Robinson of Auburn, Alabama, head of the Zoology and Entomology Department of the Alabama Polytechnic Institute, died suddenly on August 27. Dr. Robinson was interested in beekeeping for many years and was managing director of the Beekeepers' Marketing Agreement during the depression years. He was especially efficient as a toastmaster at beekeepers' banquets and he will be greatly missed by members of the beekeeping fraternity.

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Dr. B. Elwood Montgomery, Associate Professor of Entomology at Purdue University, has been granted a year's leave of absence to go to Cawthron Institute, Nelson, New Zealand, as a Fulbright research scholar to study the ecology of bumblebees in relation to the fertilization of red clover. A member of the Purdue staff since 1929, Dr. Montgomery teaches economic entomology and beekeeping. His research in New Zealand will be in line with studies now being conducted at Purdue, which have not included work with bumblebees because of staff limitations. He will study under the Fulbright Act of 1946 which provides for use of some of the currencies and credits of other countries acquired by the United States through surplus property sales abroad for educational exchanges. — Purdue News Service, Lafayette, Ind.

* * * * *

The Westchester County Beekeepers' Association will hold its regular monthly meeting at 2:30 p.m. on October 16 at the home of Arthur Carmen, Poundridge, N. Y. Practical outdoor demonstrations of hive inspection will be given and members will be instructed regarding wintering of bees. Visitors are always welcome. Refreshments will be served.—B. F. Miller, Publicity.

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The Florida Beekeepers are holding their annual meeting in Lakeland on October 10, 11, and 12. The Lakeland Terrace Hotel has been selected as headquarters for the convention.—John D. Haynie, Sec.

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The annual convention of the Georgia Beekeepers' Association will be held in Homerville, Georgia, on October 26.—T. C. Chambers, Sec.

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The Louisiana Beekeepers' Association will hold its annual meeting on October 28 at the State Capitol Building in Baton Rouge, La. The meeting time will be at 9:30 a.m.—Calvin Bessonet, Pres.

* * * * *

Plan now to attend the three big events that will mark the close of another most successful season for the **North Jersey Beekeepers Association.**

Meeting — Wednesday evening, October 19 in Room F, of Bergen County Court House. Diplomas will be presented to a class of 25 who have passed the course by the New York-New Jersey Apicultural Board. This Board, organized a little over a year ago, has already accomplished much. It is composed of representatives from the Westchester County Beekeepers' Association, the Bronx County Beekeepers' Asciation, and the North Jersey Beekeepers' Association. The members who received these diplomas have taken an extension course at Penn State College, have passed the field demonstration prescribed by the Board, and successfully completed a four-hour examination given by the Board.

Many prominent speakers will be on hand at this meeting, and entries will be received for the third Annual Honey Exhibition.

Honey Exhibition: Our third Annual Honey Exhibition will be held at the Packard-Bamberger Store in Hackensack, N. J. on Friday and Saturday, October 21 and 22. The judging will take place on Saturday afternoon. Entries will be received in the following classes:

Extracted Honey: Light, amber, and dark honey.

Section Honey, beeswax, chunk honey, and best labeled.

(Continoed on page 656)

American Honey Institute News Notes

By Harriett M. Grace, Director
Commercial State Bank Building
Madison 3, Wisconsin

Let's Sell Honey

Yes, let's. Mrs. Grace at the American Honey Institute will tell you how. Right out of the frying pan is a new book called "Let's Sell Honey" that embodies the techniques of good selling. And to work this booklet should go right into the hands of the beekeeper who can use this information to arm himself against any stubborn market.

Mrs. Grace sends this booklet to all paid-up members of the American Honey Institute. If you pay your dues now, the booklet will be mailed to you promptly. For those of you who are not members of the American Honey Institute, the book will be sent for two dollars.

* * * * *

We're Pleased!

And with good reason. The orders for our new recipe booklets "Milk and Honey Treasures" and "Lemons and Honey" are astounding even to us. This fall has kept us busy wrapping books and sending them out to enthusiastic beekeepers. With response like this, the work of the American Honey Institute reaches its target — the homemaker-consumer.

You may be surprised to know that there are a thousand dollars worth of pictures in but one of these books.

Single copies of the book are ten cents. For a limited time you may secure these at five dollars per hundred. Order soon so that your customers as well as your neighbor beekeeper's customers will have these.

* * * * *

Honey in the School Lunch

This fall schools will be using the Honey purchased by the Government for the school lunch program. Many cafeteria managers, however, do not have proper recipes for the use of the Honey that has been given to them.

Once again, the Institute comes to the rescue. By sending us a post card, any school cafeteria manager can get one of our large quantity recipe books prepared especially with the school lunch in mind. Remind your school dietitian to get her copy. Beekeepers who support the Institute make it possible for us to furnish these books.

* * * * *

National Honey Week

This is October, the month when all beekeepers should be preparing their promotional campaigns for National Honey Week, the last week in October.

Regardless of all releases the Institute sends out, despite all the joint promotion work we do with other food industries, National Honey Week promotion can not get along without the efforts of the individual beekeeper.

So let's all try for a successful National Honey Week!

* * * * *

The Beekeeper's Town Meeting

Fall gives the beekeeper a chance to exercise his democratic rights by attending the fall beekeepers' meetings. Here is your chance to talk over problems and share your happy experiences with others. Keep the bright lights shining.

Here's hoping for good attendance.

* * * * *

Honey Fruit Cake for Bakers

Members may write the Institute for a recipe for an inexpensive Honey Fruit Cake to give to bakers who purchase their Honey.

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Our Honored Guests

A short while ago we welcomed Mr. and Mrs. Lewis W. Parks at the office. Mr. Parks, chairman of the board of directors of the American Honey Institute, drove to Madison from Watertown, Wisconsin, for a day's visit. Reports have it that they enjoyed the visit as much as we at the Institute did!

Won't some of the rest of our beekeeper friends (which includes all of you) also accept our invitation to visit us?

SIFTINGS

"It has been observed that drone brood will be killed by a degree of cold which does not injuriously affect worker brood." — April 1861 American Bee Journal.

Beekeeping in Israel

By H. H. Root

Left to right: Joseph Schrieber, Naftaly Perach, B. Glicksburg.

Three interesting gentlemen from the new country of Israel paid Gleanings a visit recently. Two of them, Naftaly Perach and Joseph Schrieber, are from this new country, and B. Glicksburg, who has been studying in Illinois, plans to make Israel his home. All three are beekeepers and are very much interested in bees for pollination and for honey.

This new country, with so old and wonderful a history, is today the migration point of thousands.

One of the principal sources of honey is the orange. Strangely enough, the carrot produces an amber honey of very fair flavor in Israel. It is similar in appearance to our wild carrot although much larger. If the wild carrot yielded honey in the United States, there would never be a dearth, as it is so widely distributed over the whole country. But bees are seldom seen on it, and they visit it chiefly in quest of pollen.

Mr. Schrieber, especially, was much interested in the possibility of a portable extracting plant on a fairly large scale. The extractor, uncapping machine, and pump are to be operated by a gasoline motor mounted on the trailer. Portable outfits are not as popular in the United States as they were 30 or 40 years ago. The central extracting plant with adequate facilities for settling and straining the honey is now more commonly used.

There are conditions where the portable plant is the best solution. After being emptied, the combs can be returned at once to the hive if conditions warrant. The honey and cappings removed may be clarified and processed at a central point, saving transportation of combs to and from the apiaries. A great drawback to the portable plan is the danger of robbing and getting all the colonies in an uproar. With proper precaution this nuisance can be reduced.

If brood diseases are found, the portable extracting plant is not to be recommended because of the greater difficulty in sterilizing the equipment.

Siftings

"We have had a very extraordinary season here with crop averages up to five times as high as in 1948. It is the first really hot summer we have had since a group of three in 1933, '34, and '35, and compares also with the record summer of 1921. Colonies have been getting as much as 200 pounds surplus against an all-around average year by year of 40 pounds. In 1948 the average was under 20 pounds so the comparison is all the more striking."—Excerpt of letter dated August 18, 1949, from E. G. Burtt of Gloucester, England.

* * * * *

"A newly-emerged queen is not a feeble staggering creature like the baby worker or drone. She is a strong agile insect capable of immediate flight or battle to the death with another queen."—From "The Bee Craftsman" by H. J. Wadey.

VIRGINIA SUMMER SHORT COURSE

(Continued from page 652)

date methods of management and good beekeeping equipment.

Harold J. Clay of Washington, D. C., spoke on "Trends in Honey Production and Marketing". There appears to be a trend from honey production to pollination. This is apparent in different parts of the country. In one western state a 4000-colony operator has put bees in 2000 acres of alfalfa, two colonies to the acre.

There is a trend in farm practices from grain cropping to pasture land. In five acres approximately 28 million acres will return to pasture and legumes.

The wide-mouthed jar being used quite generally, especially for packaging chunk honey, lends itself to ease in filling and emptying jars. There is also a trend toward granulated or creamed honey. It has some advantages. It does not drip and children can handle it quite easily.

Honey labeling is essential. There must be eye appeal in order to increase sales. There is a possibility that honey-sweetened cereals may soon become a reality, and if so this will take up quite an amount of honey.

All in all, the meeting was a grand success. Those who prepared the program are to be complimented on the success of the meeting.

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JUST NEWS

(Continued from page 653)

Get your entries in early. All entries must be packed in 1-pound jars. You will receive a number when entry is submitted. Members wishing to display labeled honey will contact the secretary at an early date.

Third Annual Dinner: The Gala occasion of the year which will close the successful season will be our Third Annual Dinner to be held at Nystrom's Restaurant on the evening of November 2. Our North Jersey Association has topped any previous membership records. Awards for the membership contest and the Honey Exhibition will be made at the dinner which will be under the direction of the able Mrs. Ninna Conrad.—Rose Leswing, Cor. Sec., Hackensack, N. J.

St. Louis-St. Louis County Beekeepers' Association 1949 Field Meet at Kirkwood, Mo., Municipal Park. The corkball and softball players would not call time to get into the picture.—Photo sent by George W. Nagel, Maplewood, St. Louis, Mo.

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate:—15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

NEW CROP of honey shipped daily from producer in Florida. Pure orange blossom, 5 lbs., $2.25. Pure Florida comb honey, 5 lb. pail, $2.75. No C.O.D. orders, all shipments prepaid. E. R. Raley, Daytona Beach, Box 1610, Florida.

FLORIDA WHITE TUPELO, the world's finest honey—pure orange blossom honey — white clover, and buckwheat honey shipped in barrels, 60-pound tins, gallon cans, or in glass by the case. Pure maple syrup. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

CLOVER extracted honey in sixties. Abram H. Brubaker, Lancaster, Pa., Rt. 1.

HARRIS for Michigan's best clover extracted honey, one can or a car. New cans. Harris & Son, St. Louis, Michigan.

500 NEW CASES fancy clover-basswood comb honey with that old-fashioned flavor. Sample case, $10.00. F.O.B. Barger Apiaries, Carey, Ohio.

CLOVER HONEY in new 60-lb. cans, 12c. Order from ad. Ohmert Bee Farms, Dubuque, Iowa.

NEW CROP Clover Honey, white, extra good flavor, 15c per lb. in 60's. Lose Brothers, 206 E. Jefferson St., Louisville, Ky.

NEW CROP. Extra white clover honey in sixties. Case or carload. Also comb. W. A. Walker, Port Austin, Michigan.

WHITE CLOVER honey suitable for bottling. Angus Carruthers, Syracuse, N. Y., Rt. 2.

FOR SALE: 350 60-lb. cans Buckwheat Honey. Best offer takes it. Bee Maid Apiaries, 1538 Franklin St., Lafayette, Ind.

30 CASES COMB HONEY for sale, No. 1, weight, $7.50 per case of 24 sections; culls or No. 2, $5.00 per case, six case carriers. Some used bee equipment cheap. H. G. Quirin, 400 South West St., Bellevue, O.

MICHIGAN FINEST CLOVER & AMBER HONEY in sixties. Arthur Thayer & Sons, 2122 Ames, Saginaw, Michigan.

MINNESOTA'S finest pure white mild clover honey, 5-pound pail, $1.50 postpaid; 60-pound can, $7.50 F.O.B. 10 or more cans, $7.20 each. Liquefied and strained. Robert E. Denny, Roseau, Minnesota.

FOR SALE—Northern Michigan honey —a blend of clover, basswood, milkweed —12c lb. in 60-lb. cans F.O.B. Northern Michigan Apiaries, Petoskey, Mich.

We furnish Beekeepers and Dealers with the finest Michigan clover, and light amber honey for table use. We have the stock. Keep your customers supplied at all times. Get on our mailing list. Address Townsend Sales Co., Northstar, Michigan.

PURE WISCONSIN No. 1 white honey in 60.-lb. tins, about 20 tons. Fox Valley Apiaries, Clarence Pfluger, 127 S. Ontario St., DePere, Wis.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

WANTED — White and amber honey. Any amount. D. F. Treap, 316 Keenan Ave., Cuyahoga Falls, Ohio.

WANTED—Honey and wax, any quantity. Send samples and prices. Alexander Company, 819 Reynolds Road, Toledo 7, Ohio.

CASH FOR YOUR HONEY — Extracted or comb. Regular trade send sample. 60-lb. cans furnished if desired. W. R. Moomaw, Stone Creek, Ohio.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 1360 Produce St., Los Angeles 21, California.

WANTED—EXTRACTED HONEY— Clover or light amber. C. H. Denny, 483 Moody St., Akron, Ohio.

HONEY AND WAX WANTED — Mail Sample. Advise quantity. BRYANT & SAWYER, 2425 Hunter St., Los Angeles 21, California.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Co., Millersport, Ohio.

WANTED white and buckwheat comb honey. For sale: corrugated paper shipping cartons for following, per 100, comb honey, 4¼, 24's, $19.50; 6 5-lb. tin pails, $16.25; 60-lb. cans, $13.00; single 5-lb. pails, $11.00. Roscoe F. Wixson, Dundee, N. Y.

CASH FOR BEESWAX — Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

HONEY LABELS

Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.

C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

MICHIGAN HEADQUARTERS for

Root QUALITY

Bee Supplies

Complete Line of Bee Supplies and Honey Containers
Prompt Service

MICHIGAN BEE and FARM SUPPLY

Main Office — Mail Order Address
Box 7 Lansing, Michigan

Northern Branch
US-31 South Side
Elk Rapids, Michigan
Open Fridays and Saturdays on and after May 6.

INDIANA BEEKEEPERS
Root Quality Bee Supplies
HONEY CONTAINERS of all kinds, some new designs. Please let us furnish your requirements. The new BEE HIVE will have the prices, or write for them.
A. I. Root Company of Indianapolis
121 No. Alabama Street
Indianapolis 4, Indiana

HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.

C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

CASH for your comb honey and all types extracted. Send sample and best price. Buckeye Honey Co., 3930 N. High St., Columbus 2, Ohio.

WANTED—Comb honey and extracted honey, large or small amounts. Send price list and samples. R. A. Raley, Box 2263, Daytona Beach, Fla.

WANTED — Large truck load finest quality clover honey. Ellsworth Meineke, Arlington Heights, Illinois.

WANTED—Carlots of extra white, or better, clover honey, preferably from Western States. Send samples and your lowest price, fob cars. Cloverdale Honey Co-op., Inc., Fredonia, N. Y.

FOR SALE

QUEENBEE PAINTING OUTFIT, $1.00; colony records, 10-15c postpaid. Southwick Apiaries, Waban, Mass.

WE CARRY a full line of ROOT QUALITY Bee Supplies. Prairie View Honey Co., 12303 12th St., Detroit 6, Mich.

FOR SALE — Write for large free Bee Supply Catalog. We manufacture bee hives, foundation, tanks, and extractors. Listing many items not found in other catalogs. Walter T. Kelley Co., Paducah, Ky.

WRITE FOR CATALOG — Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Michigan.

The only comb foundation plant in the East. We sell foundation, work your wax, render comb and cappings. Twenty nine years' experience. Robinson's Wax Works, R.D. 3, Auburn, N. Y.

YOUR WAX worked into medium brood foundation for 23c pound, 100 lbs., $19.00. Fred Peterson, Alden, Iowa.

FOR SALE — 1500 colony outfit with equipment, truck, and warehouse. House can also be included. Located in exclusive territory—high production average. Inspection certificate furnished. C. E. Cheeley, Columbus, Montana.

17 COLONIES, all heavy, including '49 crop in shallows, inspection certificate. Included are small extractor, excluders, escapes, boards, uncapping knife, extra deep bodies, honey cans, etc. R. D. Hiatt, 915 Grand Ave., Dayton 7, Ohio.

MONTANA HONEY PRODUCING BUSINESS. Equipment for 350 colonies and good locations for 1000. No crop failures. Irrigated. Sell all or any part. Good reason for selling, priced right. Write Lloyd Kreklau, Box 105, Glendive, Mont.

FOR SALE—HONEY BUSINESS. Established in 1922, gross sales in 1948 $57,000, net profit $6,000 to $10,000 per year for the last ten years. With all modern up-to-date bottling machinery for filtered honey; capacity over two tons daily. Owner has made enough in business to retire. Best known label and a nice established wholesale business in state. Price for good will and business, $8,000 cash, merchandise extra. Building owned by owner and could be bought or leased or machinery moved. Just the thing for a large producer. Information on request, Box 39, Gleanings, Medina, Ohio.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements, but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

GOOD ITALIAN QUEENS, 75c each. D. W. HOWELL, Shellman, Georgia.

CAUCASIAN—2-lb. pkgs., $3.00; 3-lb., $3.75. Queens, 75c. Lewis & Tillery Bee Co., Rt. 1, Box 280, Greenville, Ala.

IN FLORIDA — 600 1½-story colonies, $10.00 each; Cypress hives, Combs in good condition, all young queens. With six frames of brood or more, and ready for production. No disease or junk, extra equipment below cost. Box 1610, Gleanings, Medina, Ohio.

QUALITY CAUCASIAN BEES — Book your orders with us now and get them when wanted in 1950. Bolling Bee Co., Bolling, Ala.

BREWER'S line-bred Caucasian Queens, 1-99, $1.00; 100 and up, 75c. Member ABBA. Brewer Brothers Apiaries, 3616 Caucasian Circle, Tampa 9, Florida.

GOLDEN Italian Package Bees and Queens. Two pounds, $4.00; three pounds, $5.00; Queens, $1.00 each. Guilford Apiaries, 4300 A. Burlington Rd., Greensboro, N. C.

THREE BANDED ITALIAN queens, extra good honey gatherers and very gentle. Select untested queens, 1 to 25, $1.00 each; 25-up, 80c; tested, $2.00. Alamance Bee Company, Geo. E. Curtis, Mgr., Graham, N. C.

GOLDEN — GOLDEN, Italian queens, best of quality. 1 to 25, $1.00 each; 25-up, 80c; tested, $2.00. Health certificate with every order. Carolina Bee Farm, W. O. Curtis, Mgr., Graham, N. C.

ITALIAN QUEENS, 50c each, shipped Air Mail and every queen guaranteed. Walter D. Leverette, P. O. Box 364, Ft. Pierce, Florida.

THREE BANDED Italian Package Bees and Queens. Two pounds, $4.00; three pounds, $5.00. Queens, $1.00 each. Bessemer Apiaries, 4300 A. Raleigh Road, Greensboro, No. Car.

PACKAGE BEES headed by Mountain Gray Caucasians or Leather Italian Queens. Write for prices. March 20 delivery. TWIN BEE CO-OP, 3616 Caucasian Circle, Tampa 9, Florida.

CAUCASIAN QUEENS—Best of quality. Good honey-getters and very gentle. 1 to 25, $1.00 each; 25-up, 80c each; tested, $2.00 each. Black River Apiaries, Elliott Curtis, Mgr., Currie, N. C.

REQUEEN REGULARLY with the best stock your money can buy. Good queens pay handsome profits in increased production and easier apiary management. We can furnish queens promptly at $1.00 each, 10, $9.00; 20, $17.00; 100, $80.00. This fine strain of Three-banded Italians is used by many leading beekeepers of the U. S. and Canada. The production of good queens is our only business. 2000 three-frame mating nuclei from which to supply you. H. C. Short, Fitzpatrick, Ala.

Little & Moore Apiaries
Originally
LITTLE'S APIARIES
The John M. Davis Strain
GUARANTEED TO PLEASE
or money refunded
April 15th to June 1st:
1 to 10, $1.25 each
June 1st to November 1st:
$1.00 each any number
Write for quantity prices
Little & Moore Apiaries
Shelbyville, Tenn.

Whittle's
Leather Colored Italians
Get your Packages and Queens when you want them. Reserve 1949 Shipping Dates Early.
Write For Our 1949 Prices
On Package Bees and Queens
Our Bees and Service
Will Please You
G. E. Whittle
Star Route West
Greenville, Alabama

A Famous Strain of
LIGHT COLORED ITALIANS
produced and shipped by
The Most Modern Bee Breeding Establishment on Earth
The Daniels Apiaries
Picayune, Mississippi

BESSONET'S
Queens, 1-24 ..... 80c each
25 up, each air mailed, 75c
Bessonet Bee Company
Donaldsonville, La.

Three Band Italian
Package Bees and Queens
Jackson Apiaries
Funston, Ga.

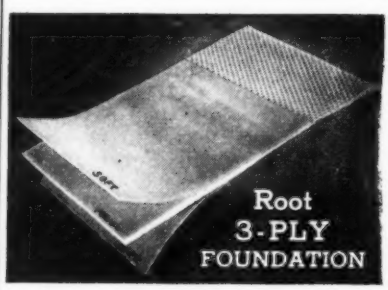
JENSENS Say:

"Thank you for a good season." Another season drows to a close. In some ways it has not been all that we would have desired; in others it has been great.

Times and conditions like the present are good for testing and proving both product and man. In spite of unfavorable conditions in the industry, we have enjoyed a remarkably good queen business. Instead of cutting prices to the lowest level we have given added QUALITY and SERVICE that has won favor and friends. As one customer so aptly puts it—"Without good queens time and effort are useless."

Again we say—thank you!!

Jensen's Apiaries, Macon, Miss.



For

STRENGTH

SERVICE

and

DOWNRIGHT

DEPENDABILITY

Use

3-Ply Foundation

The Best for Over 27 Years

The A. I. Root Co.

Medina, Ohio

BEES and QUEENS. Send for FREE circulars. Over 30 years a shipper. Blue Bonnet Apiaries, Weslaco, Texas.

1 to 40 colonies with crop. Disease free. Phone 400 or 54. Paul La Plant, Anoka, Minnesota.

FOR SALE—60 colonies Italian bees and all equipment. L. S. Griggs, 711 Avon St., Flint 3, Mich.

FOR SALE—Reasonable, 1000 lbs. bees with queens in 2 or 3 pound packages, April 1st delivery. Write Lloyd Apiaries, Rt. 2, Box 89, Mobile, Ala.

FOR SALE—20 two-story 10-frame colonies; 40 supers with drawn combs. R. E. Swope, Leesburg, Ohio.

EQUIPMENT for 500 complete stands, bees, supers with and without drawn comb, 45-frame Root extractor with motor, honey pump, tanks, and everything; lots of foundation. Priced to sell. Ralph Davis, 922 S. Leslie, Independence, Mo.

SUPPLIES

ATTENTION BEEKEEPERS IN MINNESOTA and adjacent states. We offer a real service on Lewis-Dadant Supplies, honey containers, and labels at a price saving to you. Top market price paid for extracted honey and beeswax. HONEY SALES COMPANY, 1806-08 NO. WASHINGTON AVE., MINNEAPOLIS, MINNESOTA.

SEEDS

Study your conditions, plan for better BEE PASTURE. Free circular "SEEDS OF HONEY PLANTS". Pellett Gardens, Atlantic, Iowa.

PERMANENT PERENNIALS, TREES, SHRUBS for your bee pasture can now be planted this fall. Illustrated Folder free. NICOLLET COUNTY NURSERY, St. Peter, Minn.

MISCELLANEOUS

WANTED TO BUY — 300 comb honey supers and fixtures, 10-frame size, preferably 4 x 5 size. B. B. Coggshall & Son, Groton, N. Y.

WANTED: Small used extractor. Charles Wright, 3245 Green Rd., Cleveland 22, Ohio.

MAGAZINES

THE BEE WORLD—The leading journal of Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy post free. 12 cents stamps. Membership in the Club including subscription to the paper, 10/6. The Apis Club, L. Illingsworth, The Way's End, Foxton, Royston, Herts, England.

WESTERN CANADA BEEKEEPER—Official organ of the Manitoba Beekeepers' Association. One year, $1.50; two years, $2.25; three years, $3.00. In combination with Gleanings in Bee Culture, $2.75. 211 Affleck Bldg., Winnipeg, Canada.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P. O. Box 3306, Cape Town, South Africa.

KNOW interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English, by the Bhupen Apiaries (Himalayas), Ramgarh, Dist. Naini Tal, U.P., India, or obtainable from them. Subs. Rs7/—or 10 shillings or 2.25 dollars per annum. Single copy Rs¼ s. 1/9 or 40 cents (International Money Order.) Payment in mint postage stamps of your country accepted.

ANGORA GOATS

INTERESTED in Angora Goats? Read the Sheep and Goat Raiser, Hotel Cactus, San Angelo, Texas, the only ranch magazine published serving the Angora Goat industry. Subscription — $1.00, Sample copy—fifteen cents.

MISCELLANEOUS

FOR SALE — Beautiful White Collie pups. They are very high grade intelligent pups from natural heeling parents. They are also good pets and wonderful watchdogs. B. Cottrell, Irma, Wis.

QUEENS
Dark Three-Banded Italians
75c each for the balance of this season
A. M. Peach
Baldwyn, Miss.

ITALIAN QUEENS
Any Quantity
75c
Girardeau Apiaries
Tifton, Georgia

Fresh Choice Shelled Pecans
From New Crop Stock

Packed ⅞ gallon cans, not less than 3 lbs. net wt. Select large fancy whole halves, $4.25 can. Select large fancy broken halves, $3.95 can. 5% cash discount on orders for 4 cans or more. FANCY PECANS IN THE SHELL; Stewart's large thin shell pecans and well filled out with kernel, 45c per pound. We pay postage or express.

Greenville Pecan Co.
Greenville, Alabama

Canada's National Monthly Magazine for Beekeepers
Canadian Bee Journal
54 Bloor St. W., Toronto 5, Ont.
U. S. Subscription Price, only $1.75 per year.

SALES TALES

(Continued from page 651)

is not wise to overlook your immediate neighborhood as an area in which to sell your honey. Larger producers should be busy at this time strengthening their store connections and laying the ground work for year-around honey sales.

Comb honey is a very fine product to bring honey off the back shelf in the corner grocery. There has been a very excellent demand this fall for comb honey and we have found our store accounts have pushed extracted honey much harder when they see the comb honey moving. A good example of this can be seen in one of the stores handling comb honey. In three days they moved three cases. The store manager was amazed and said he never knew honey would move so well. Since then he has doubled his sale of jar honey by bringing the extracted honey out of the darkest corner and off the lowest shelf in his store. Storekeepers are very wise in that they know where they can afford to display certain food items. Fast moving products naturally get the best display position. We must continuously work in order to keep honey from being hidden. With all the promotion trying to attract the consumer's dollar, honey must be readily available in order that a woman will buy it and take it home.

Just last week I asked a storekeeper if he sold much honey. He said that honey did not move very well but that he sold a little. When we found the honey it was on one of the lower shelves back of his counter. He had four one-pound bottles of crystallized honey with a price of 59 cents on the label. This honey had been in his store for at least four years and possibly longer. No one had attempted to show this storekeeper that if he brought honey up where people could see it they would buy it.

No matter how large or small beekeepers are, now is the best season in which to build and strengthen their marketing position. Do not miss the opportunities to increase the dollar value of your honey by thinking that once the honey is off the hives your work is done. Honey must be sold in order to show a profit.

Here We Are Again!

Do You Know the regulations under which we ship Package Bees? Here are six of the twelve requirements listed under Rules and Regulations ABBA Article 2.

Trade Practices:

1. To ship only bees or queens of a strain that has been tested and found satisfactory for production.
2. To use only the best of approved methods in the rearing of queen bees.
3. To maintain only pure-bred colonies of bees of a tested strain in the queen-mating yard for the production of drones and to locate mating yards advantageously so as to influence proper mating.
4. To ship only queens that have been mated and are laying satisfactorily.
5. To use only new cages for queens and package bees, unless agreed to otherwise by the buyer.
6. To use only the best queen cage candy in queen cages and to use in the feeder cans of packaged bees only sugar syrup made with pure sugar.

The remaining six will appear in this space later.

We want you for one of our satisfied customers in 1950. Give us your correct address for our mailing list.

"Satisfaction Guaranteed"

Rossman & Long
P. O. Box 133
Moultrie, Georgia

Give Enough
for all
Red Feather Services

A TALK TO BEEKEEPERS

(Continued from page 637)

additional protection. Many beekeepers use black building paper with chaff, coarse shavings, or some such material placed between the paper and hive. Some also provide an upper entrance through the packing, which appears to have some distinct advantages. Bees can get out of the hives quite easily through an upper entrance in the event that they need cleansing winter flights.

Feeding

If an occasional colony needs food and no filled combs of honey are available, sugar syrup made of two parts granulated sugar mixed with one part of water may be fed. The sugar should be stirred into the hot water until all granules are liquefied. It is then fed to the bees. Five or ten pound friction top honey pails may be filled with warm syrup, the cover of the pail punctured with about a dozen small holes made with a three-penny nail and then placed on the filled pails of syrup. The pail is then turned upside down over the top bars of the frames or over the hole in the center of the inner cover when the block is removed. An empty super is placed on the hive to protect the pail, then the outer cover is put on top while the syrup is being taken by the bees.

ITALIAN QUEENS 65c

We are booking orders for 1950 delivery. No deposit required until prices are published.

Sunkist Bee Company Convent, La.

QUEENS

York's Quality Bred

Italian Queens

1-24	25-99	100-up
$1.00 ea.	85c ea.	75c ea.

None better regardless of price

York Bee Company

Jesup, Georgia
(The Universal Apiaries)

A Real Bargain

One of the best small package and queen bee outfits in the South. About 300 colonies with all equipment for producing bees and queens. Sold 14 pounds bees per colony this year: No disease— plenty of customers to use all bees can produce. Personal reasons for selling. A modern 7-room frame house in South Central Alabama, $8000 will put you in business and into a good home in the deep South. Write only if really interestd.

Address:
Bee Keeper, P. O. Box 548
Mobile, Alabama

When ordering Italian bees and queens, remember TANQUARY'S quality, quantity, and service. We are here to serve and please you.

No. pkgs.	Queens	2-lb.	3-lb.	4-lb.	5-lb.
1-24	$.80	$3.50	$4.50	$5.50	$6.50
25-99	.70	3.25	4.25	5.25	6.20
100-up	.65	3.00	4.00	5.00	5.80

TESTED QUEENS, $2.00 each

Queenless Packages, deduct price of queen

Queens Postpaid — — —Packages F.O.B.

Western Union: Lena, S. C. Phone: Estill, S. C., No. 109

Tanquary Honey Farms, Inc. Lena, S. C.

Leather Italians Caucasians

Queens, Any Number,

50c each

Guaranteed

Prices reduced to meet the conditions within our industry and help you stay in business.

We will ship packages only until June 20th. Queen shipments until Nov. 1st.

The Rich Honey Farms

Jeanerette, La.

Rich's All Italian Hybrid Disease Resistant

QUEENS

A New Type Bee

Northern Bred All Italian

This is a cross of pure Italian bees to produce a strong gentle bee that is superior in vigor and has positive resistance to American foulbrood.

This stock is produced and maintained by northern honey producers at much expense. We help pay that cost.

1-24, $1.25; 25-99, $1.15

100-999, $1.00

1000 or more, 95c

Quality Queens, 75c

Our Quality 3-Banded Italian Queens are Fast Builders and Great Honey Gatherers.

1-24	75c
Over 24	65c

Our New 3-Way All Italian D. R. Queens are Bred in Isolated Mating Yard, from Outstanding Northern Tested Parents.

1-24	$1.25
25-100	1.15
Over 100	1.00

Airmailed and clipped upon request

Garon Bee Company Donaldsonville, La.

Notice Please!

No more orders can be accepted for this season. Booked up. Appreciate your patronage and hope to be able to supply your needs in 1950. Thank you.

Carlus T. Harper

New Brockton, Alabama

CAUCASIANS

CARNIOLANS

Prolific, fine winterers, fine workers, and the gentlest of all bees. A few queens of these races still left. Prices while they last: **Untested, $1.00 each; in lots of 6 or more, 75c each. Tested, $1.50 each.**

Albert G. Hann, Glen Gardner, N. J.